



**RADIAL CEMENT BOND
GAMMA RAY / CCL / VDL**

Company ANTERO RESOURCES CORPORATION
 Well KRAMER 2H
 Field MARCELLUS
 County TYLER
 State WV

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 Well KRAMER 2H
 Field MARCELLUS
 County TYLER State WV

Location: API #: 47-095-02677-0000 Other Services
 SEC TWP RGE Elevation
 Permanent Datum G.L. 1014.5'
 Log Measured From K.B. 1040'
 Drilling Measured From K.B. 0F 25.5' D.F. 1039'
 G.L. 1014.5'

Date	7/2/20						
Run Number	ONE						
Depth Driller	20480'						
Depth Logger	7625'						
Bottom Logged Interval	7625'						
Top Log Interval	SURFACE						
Open Hole Size	6.75"						
Type Fluid	H2O						
Density / Viscosity	N/A						
Max. Recorded Temp.	141 DEG						
Estimated Cement Top	3780'						
Time Well Ready	N/A						
Time Logger on Bottom	N/A						
Equipment Number	340						
Location	BRIDGEPORT,WV						
Recorded By	J. BOGGS						
Witnessed By	BOB REED						
Borehole Record		Casing Record					
Run Number	Bit	From	To	Size	Weight	From	To
				5.0"	18#	20480'	SURFACE

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

THANK YOU FOR USING KLX ENERGY SERVICES

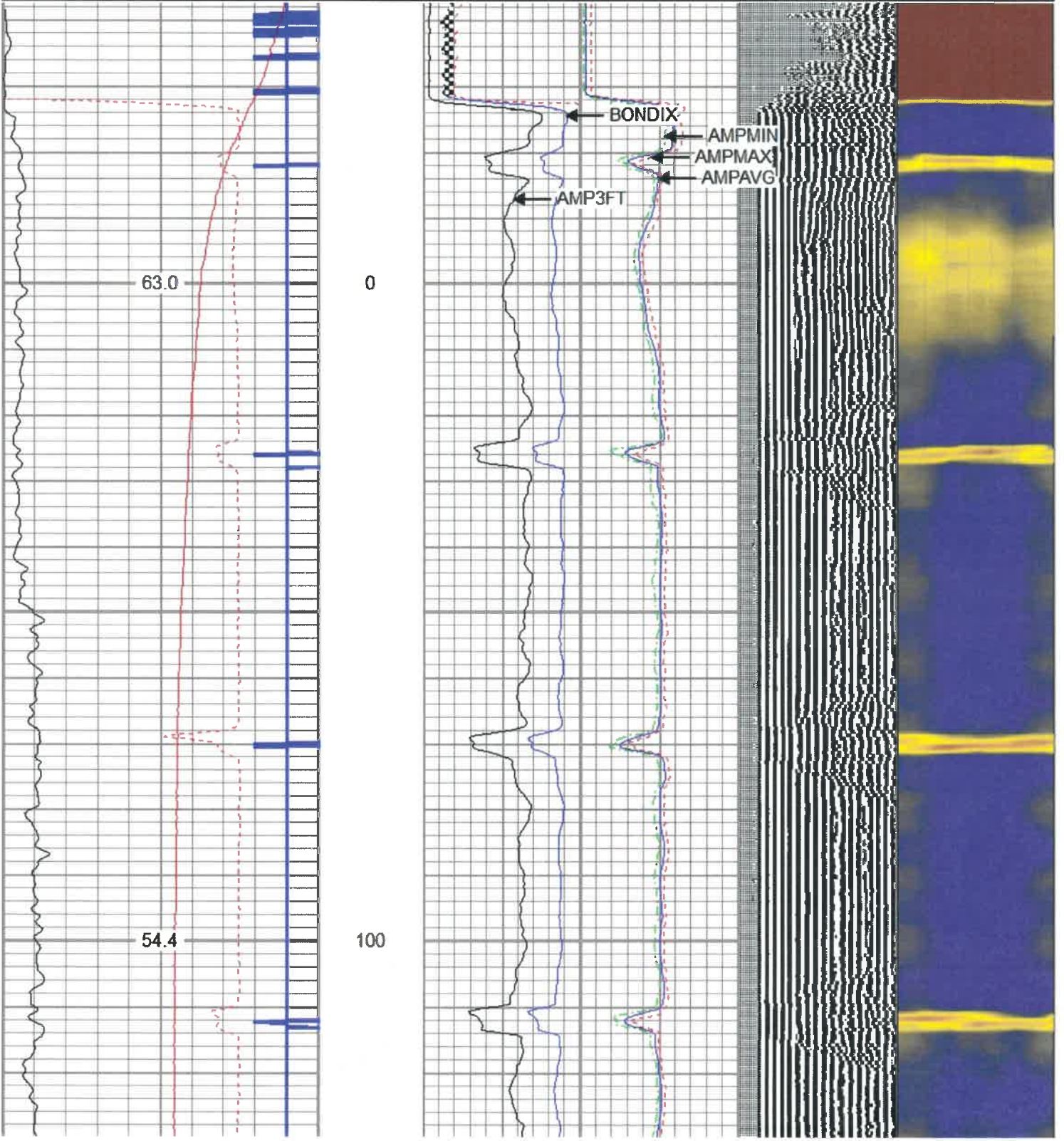
TOP OF CEMENT @ 3780'
MARKER JOINT @ 6391'-6402'
SHIFTED LOG UP HOLE 46' TO MATCH NINE ENERGY BOND LOG
BOTTOM HOLE TEMP-141 DEG
WELL WAS LOGGED WITH 1500PSI HELD ON CASING

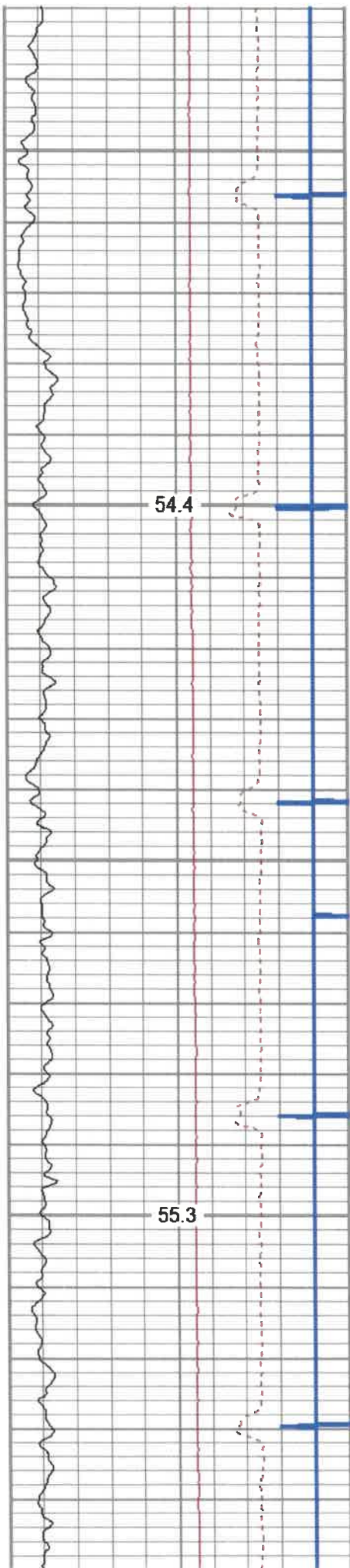


MAIN PASS

Database File: g:\antero-hogue pad\kramer 2h.db
 Dataset Pathname: pass4
 Presentation Format: antero
 Dataset Creation: Tue Jul 07 15:07:08 2020 by Calc Std Casedhole 10081
 Charted by: Depth in Feet scaled 1:240

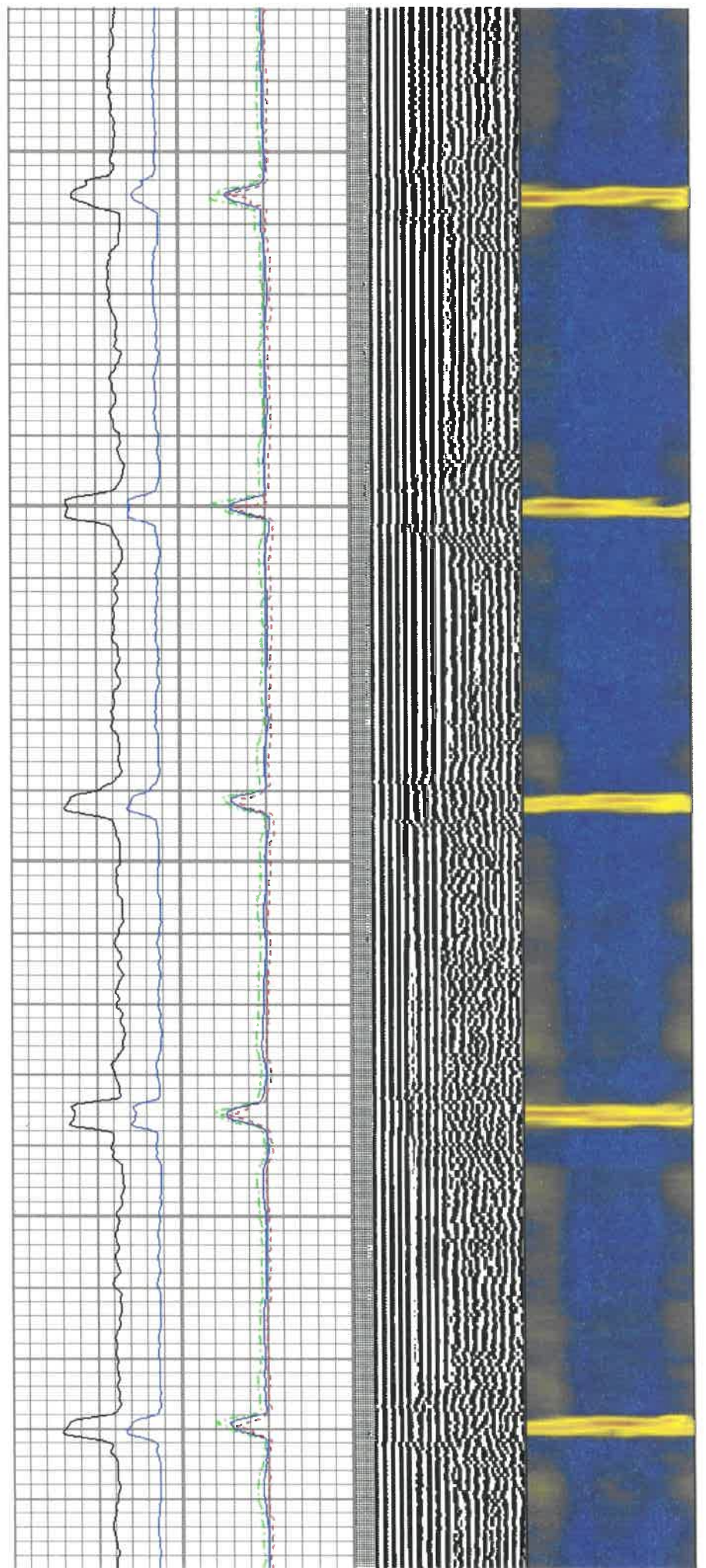
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9	Casing Collars	-1	(mV)	100	Amp Max	150					20	80
0	Gamma Ray	180	AmpX5 (mV)	20	Amp Min	150						
0	TEMP (degF)	100	BONDIX	0								
	TEMP (degF)											

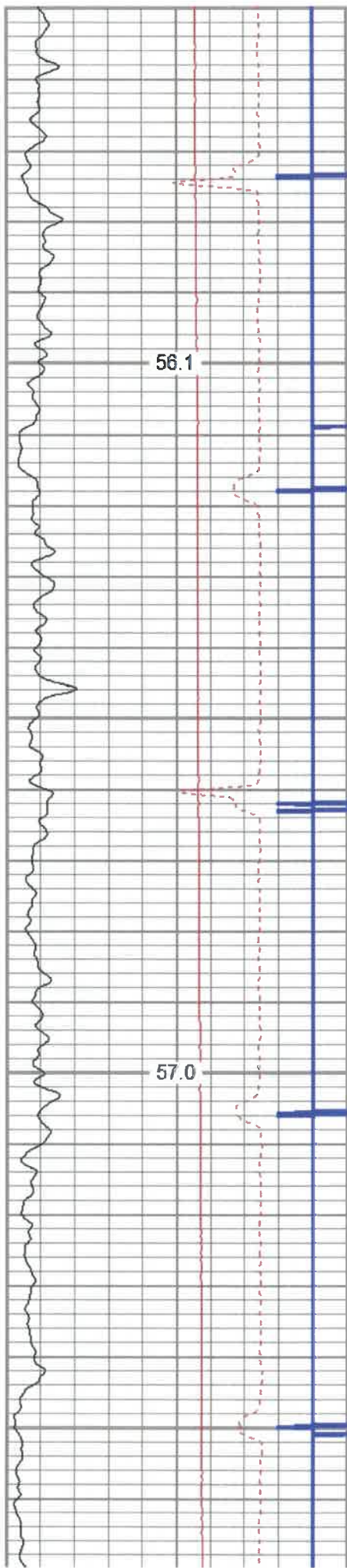




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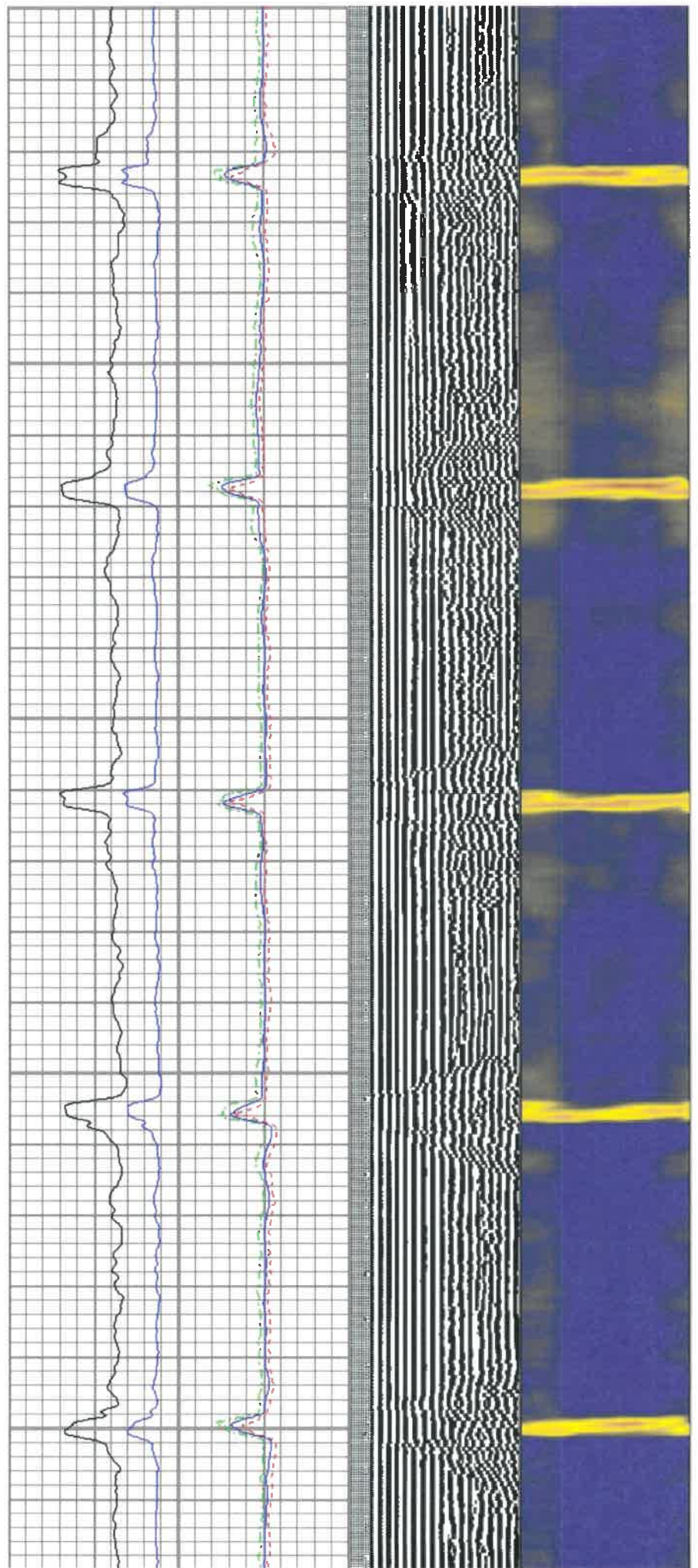
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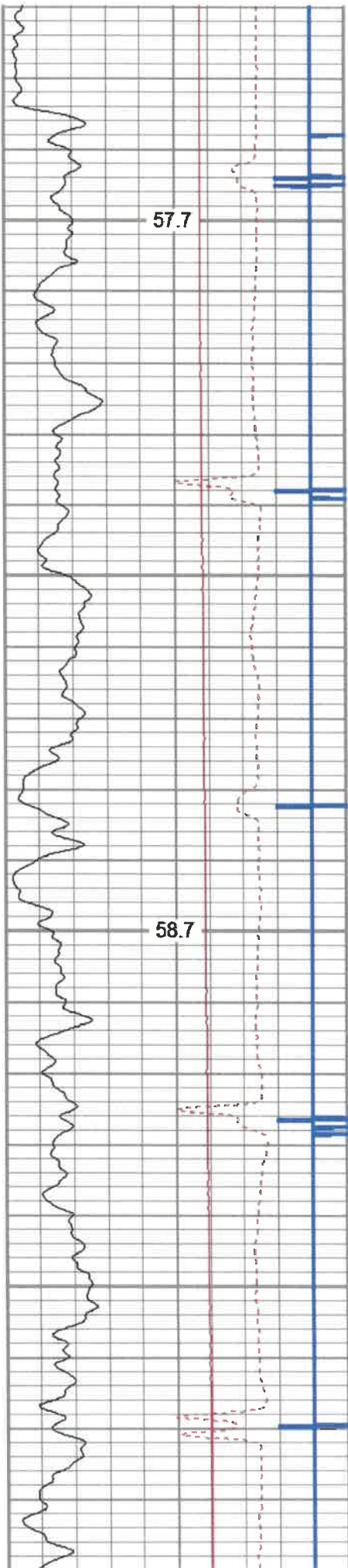




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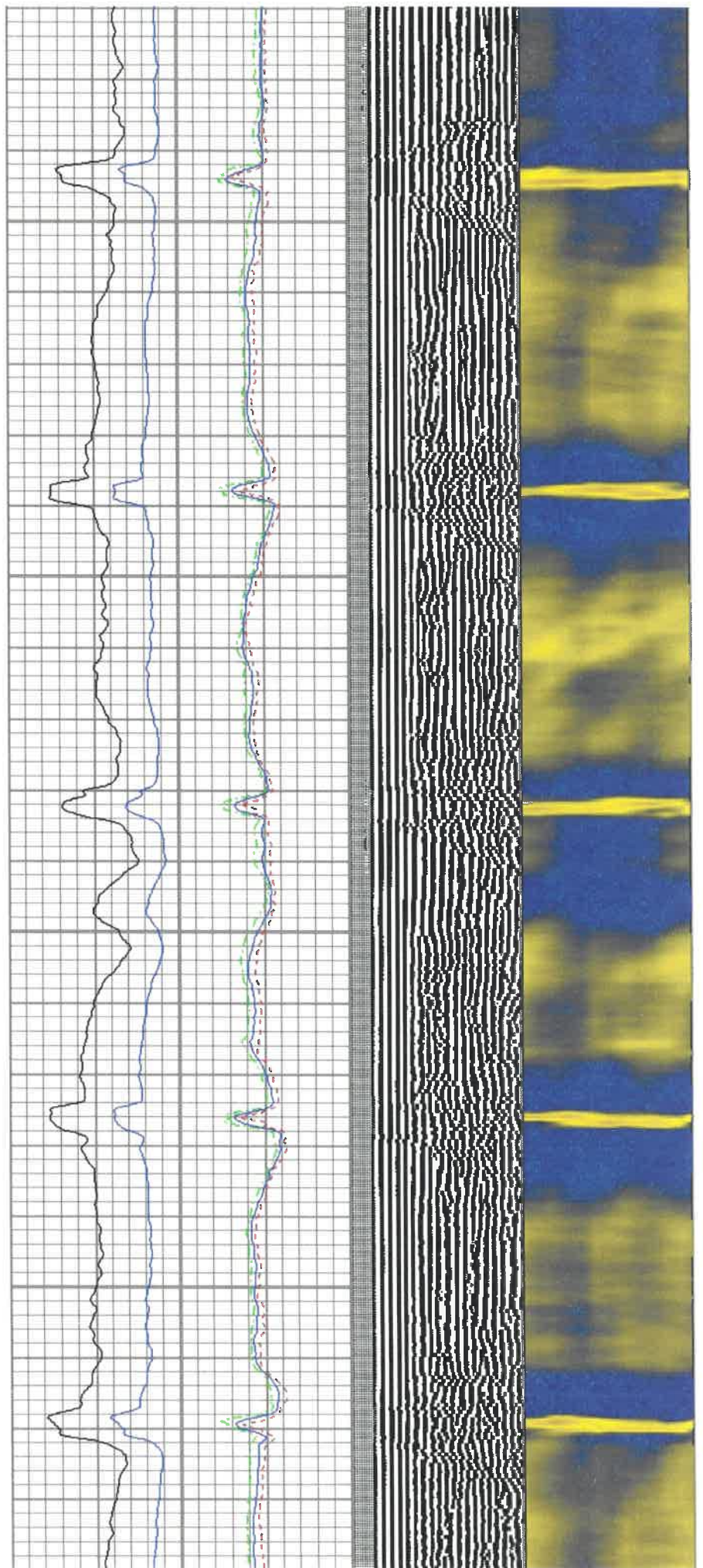
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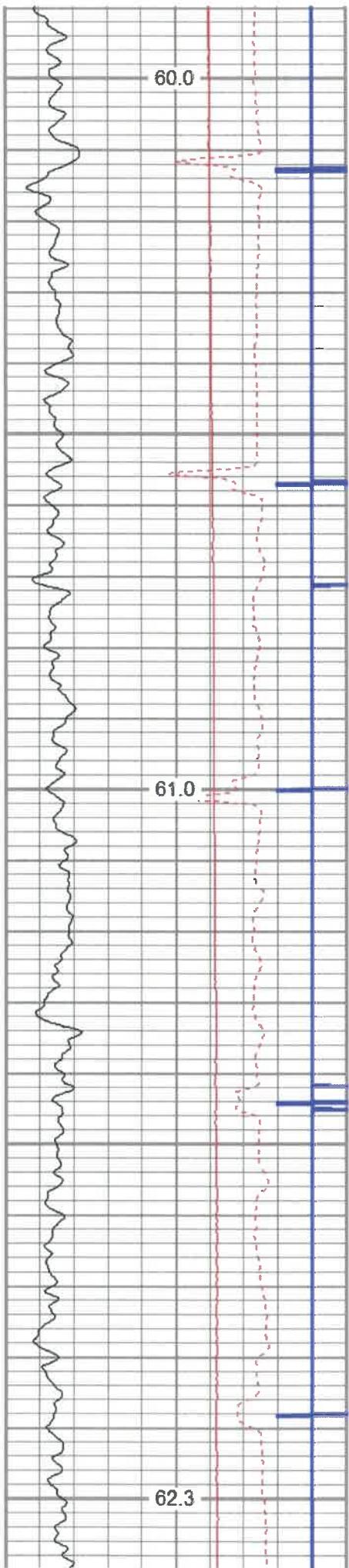




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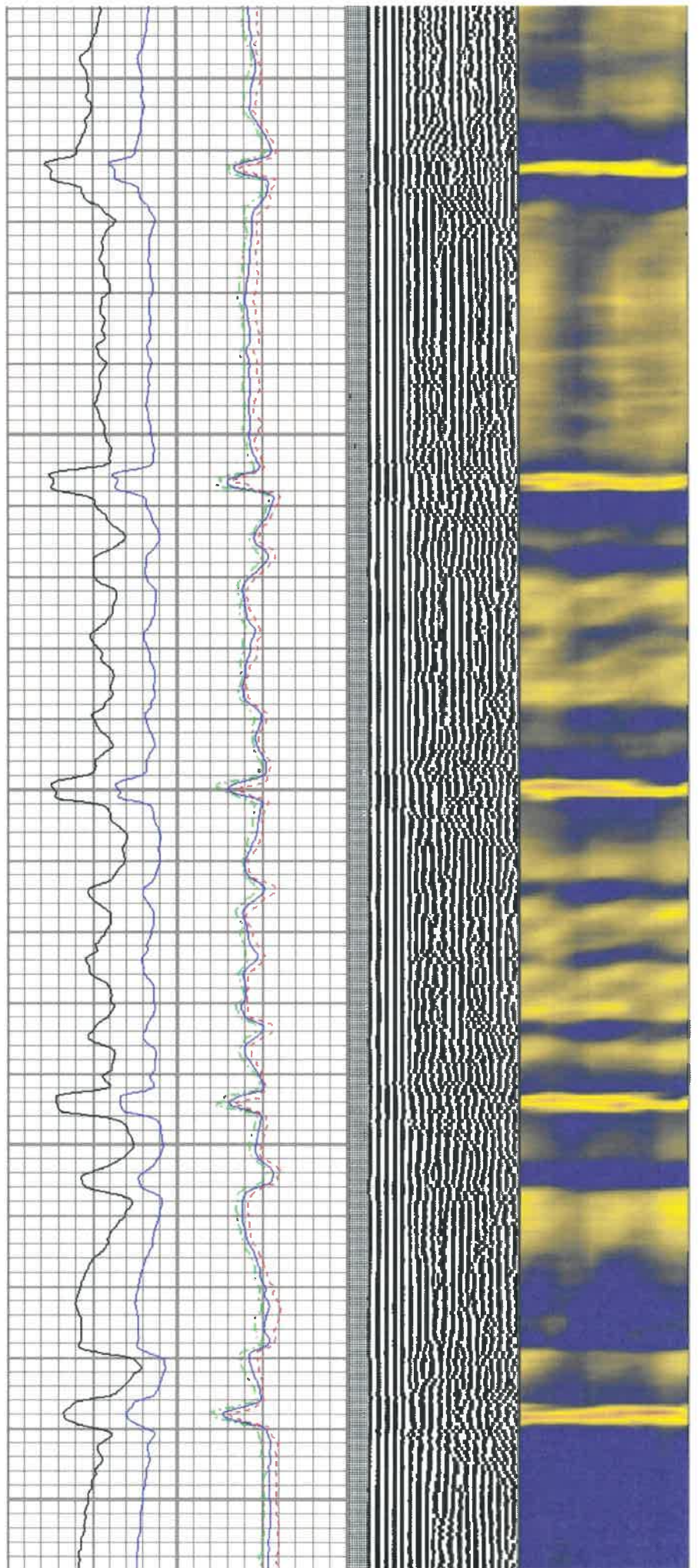


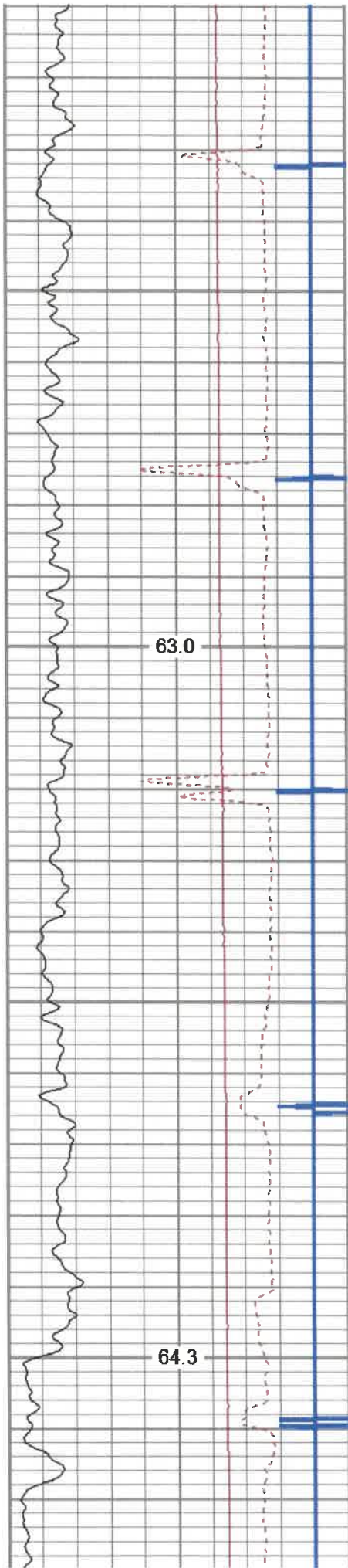


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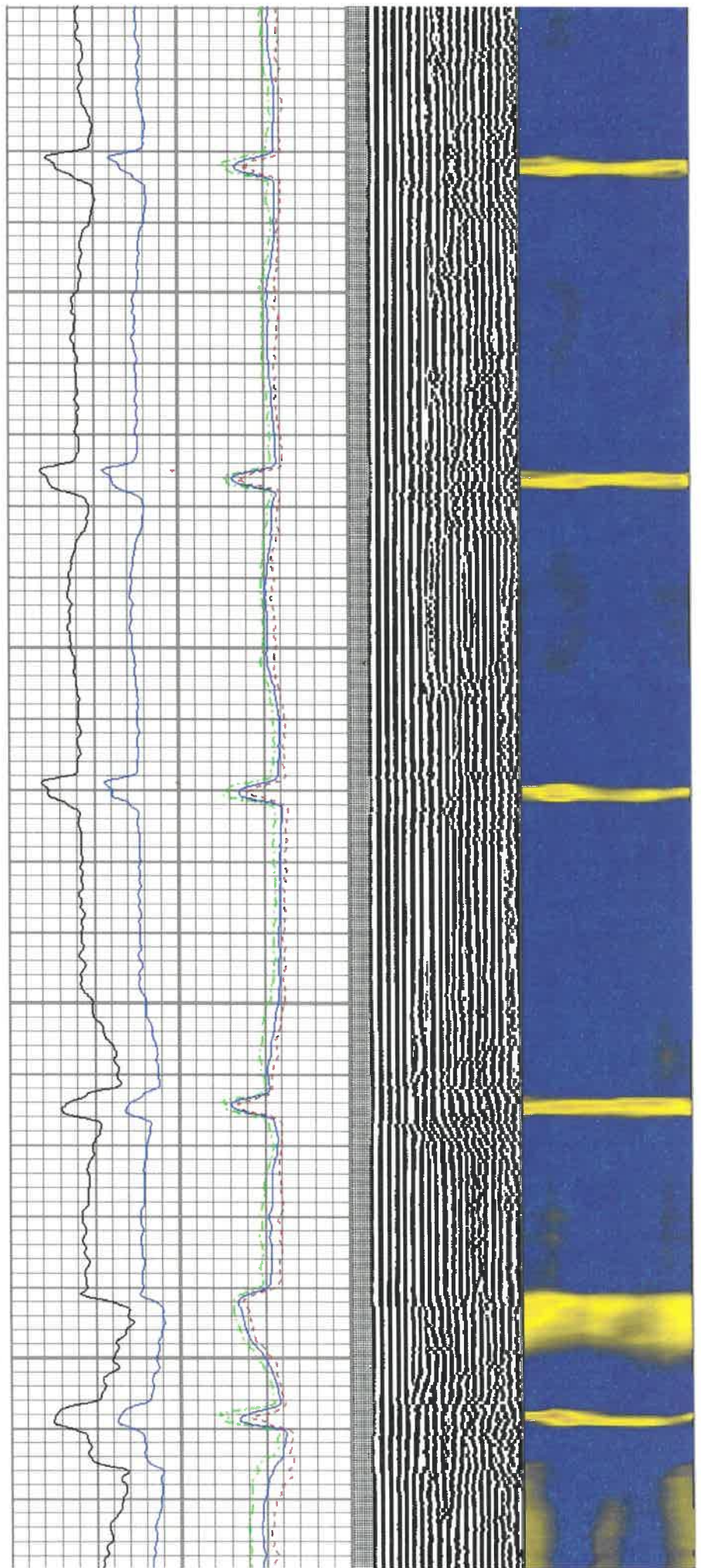
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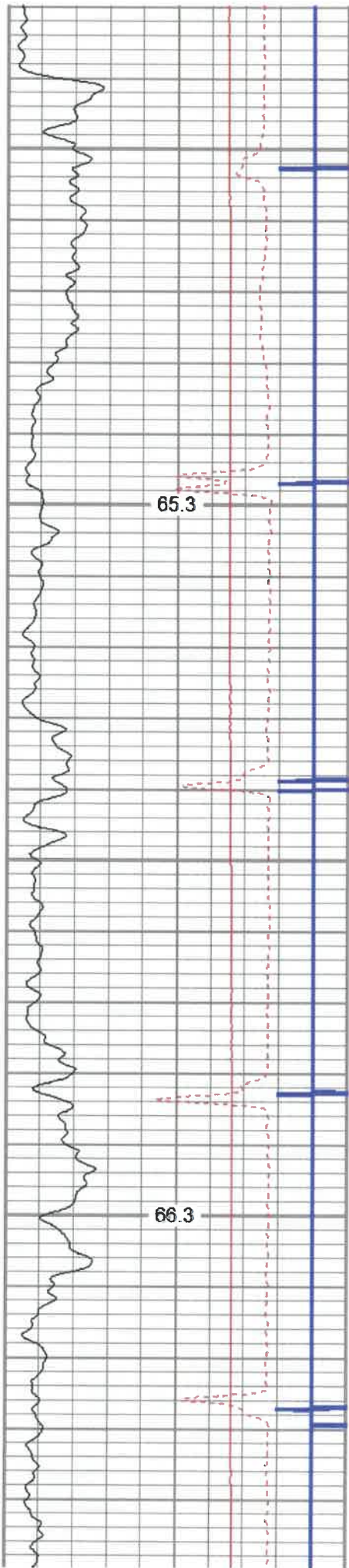




1100

1200



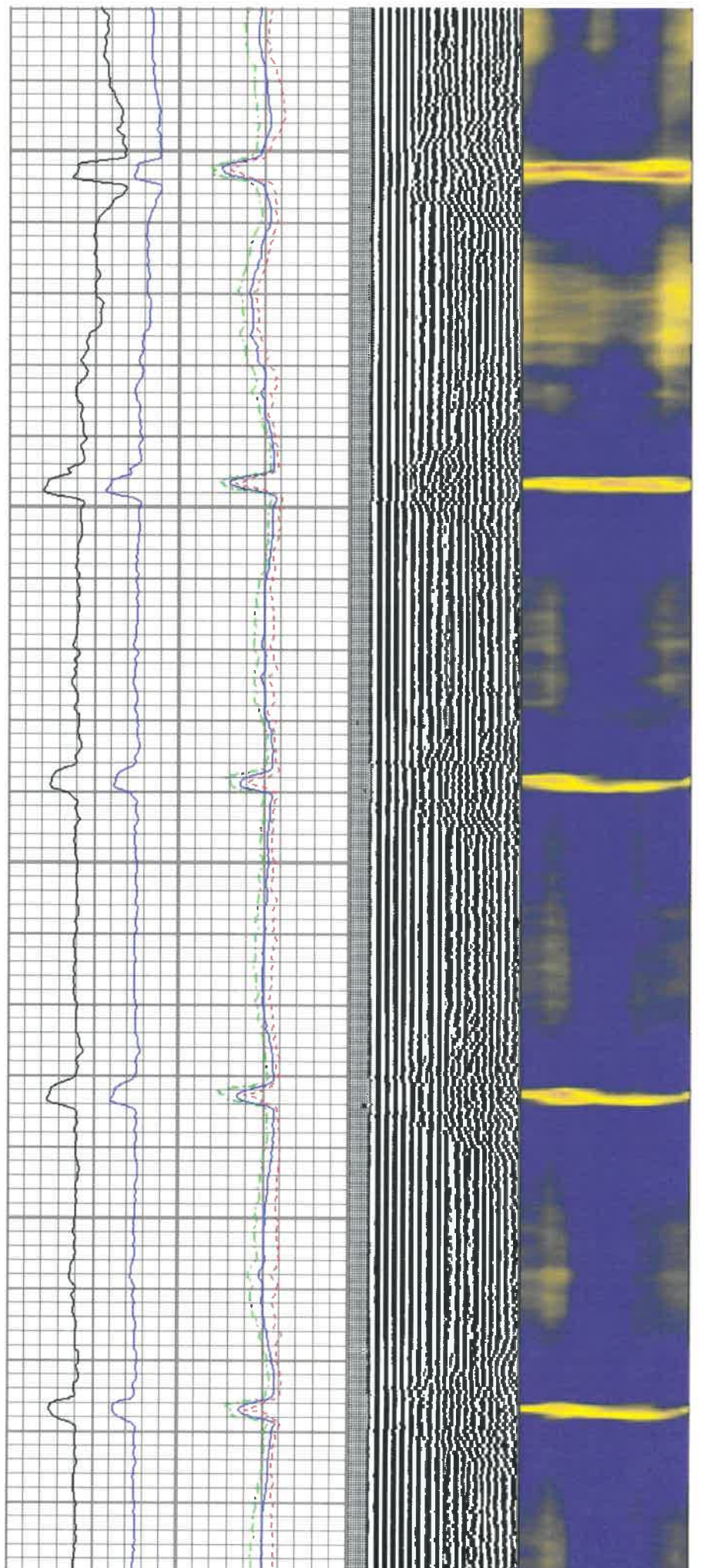


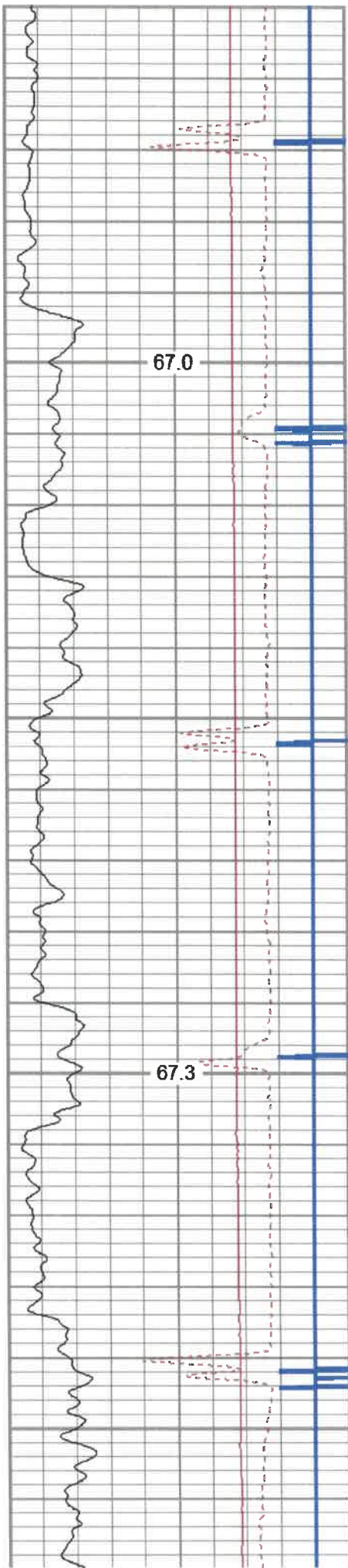
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66.3

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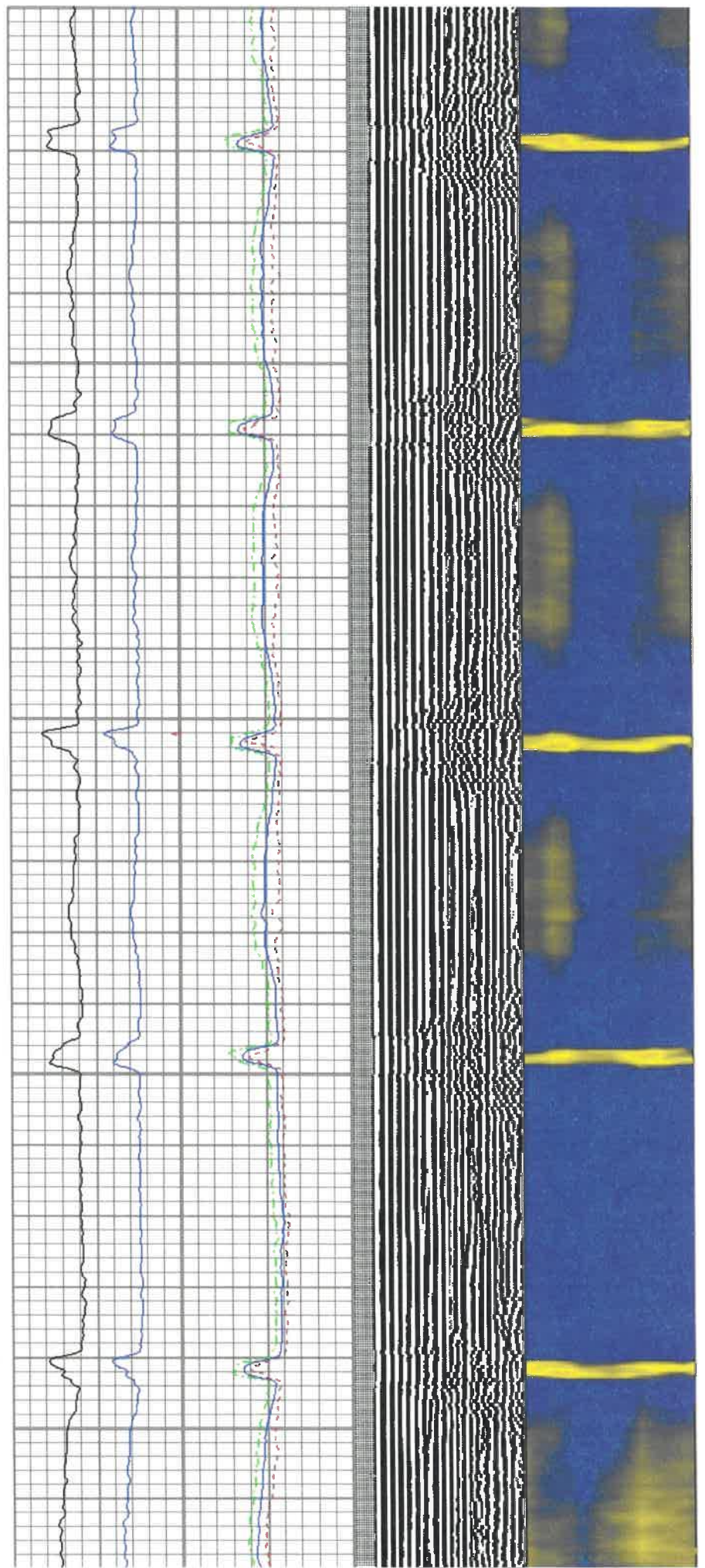
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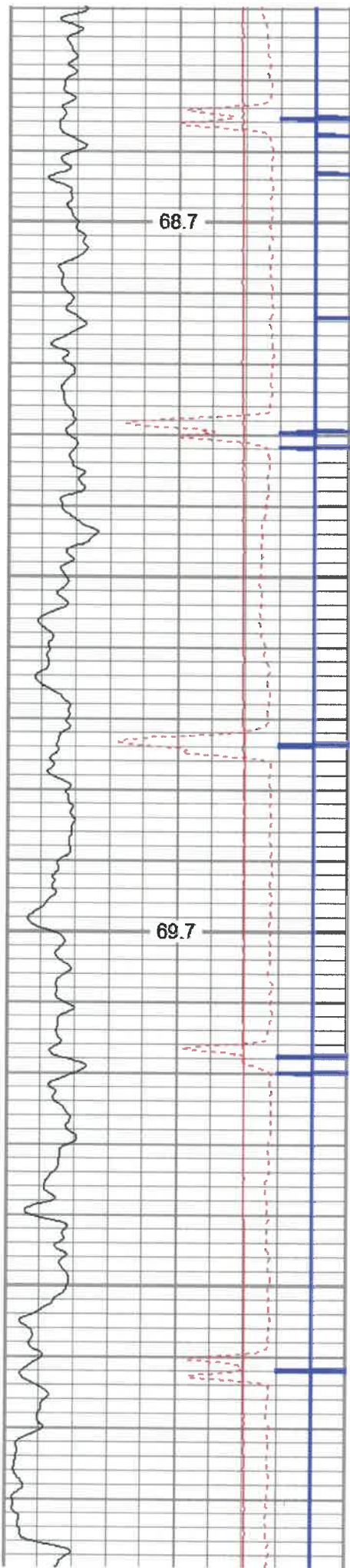




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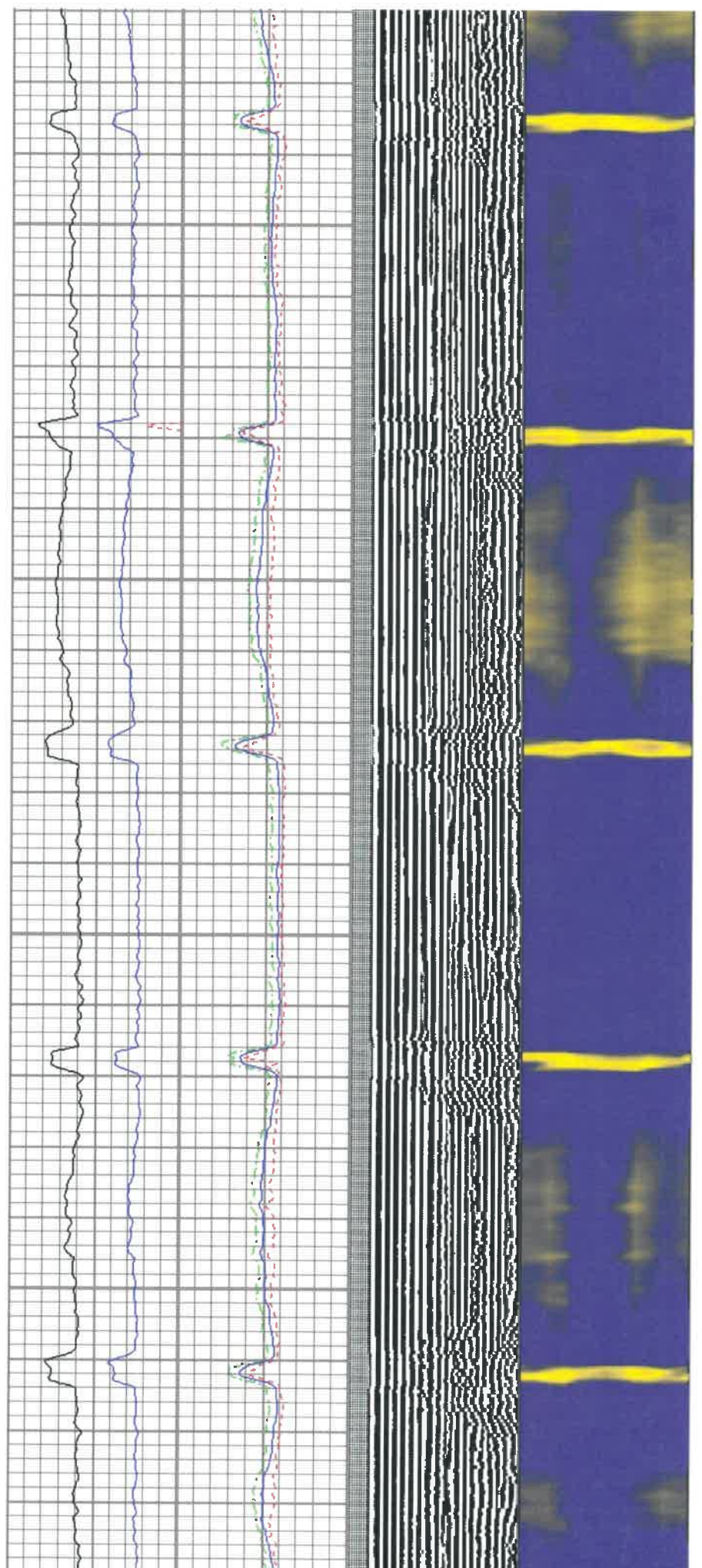
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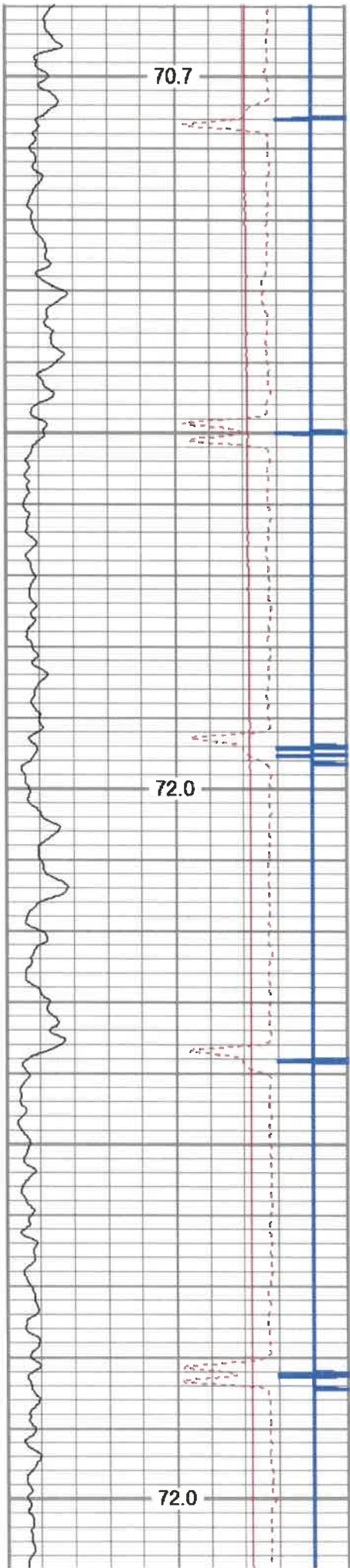




1700

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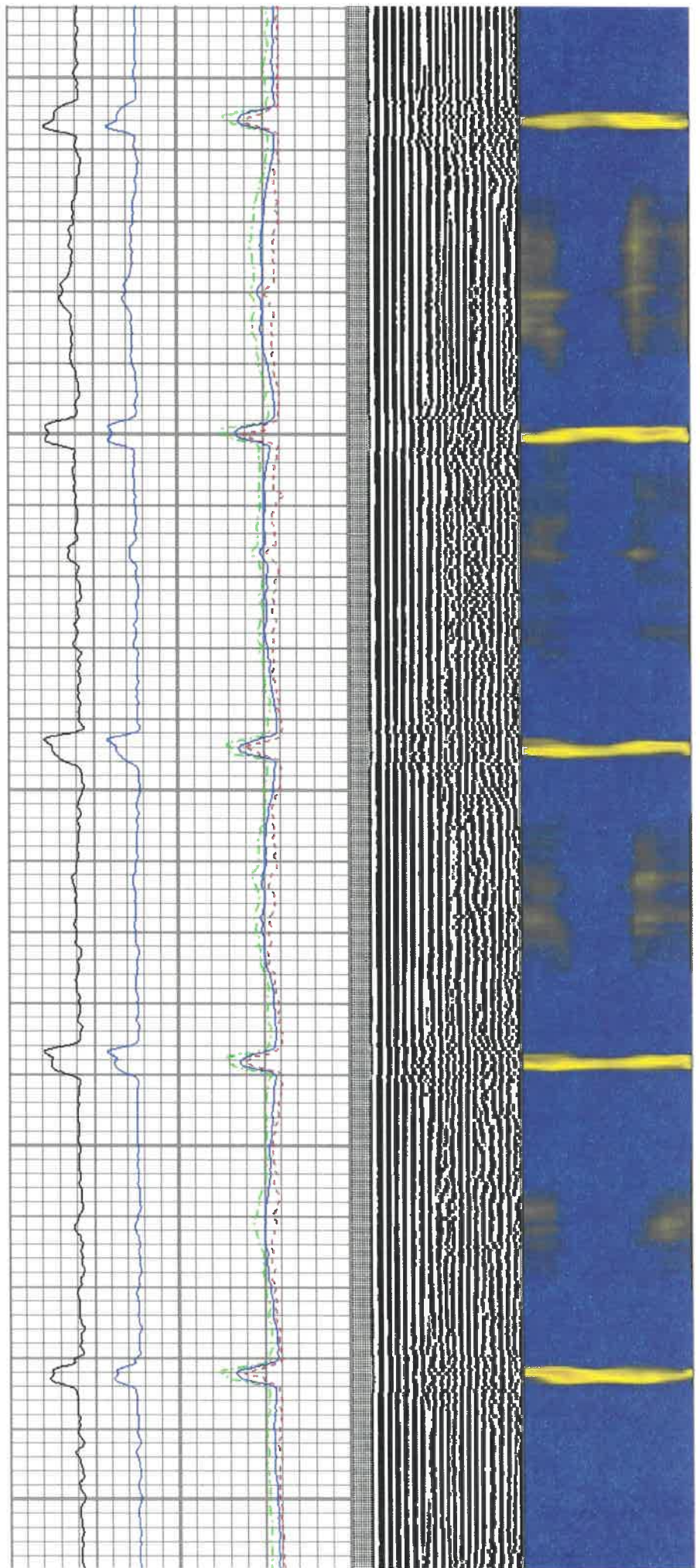


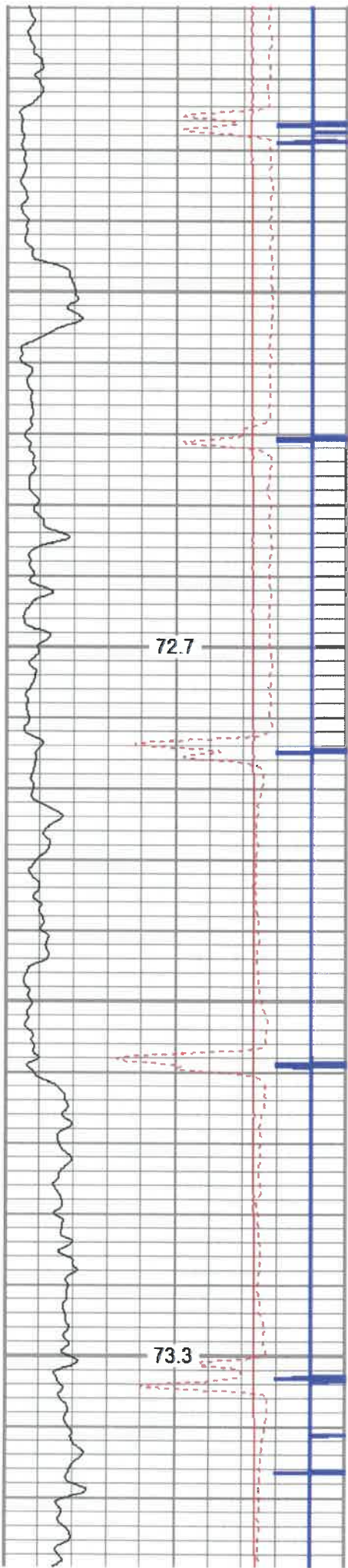


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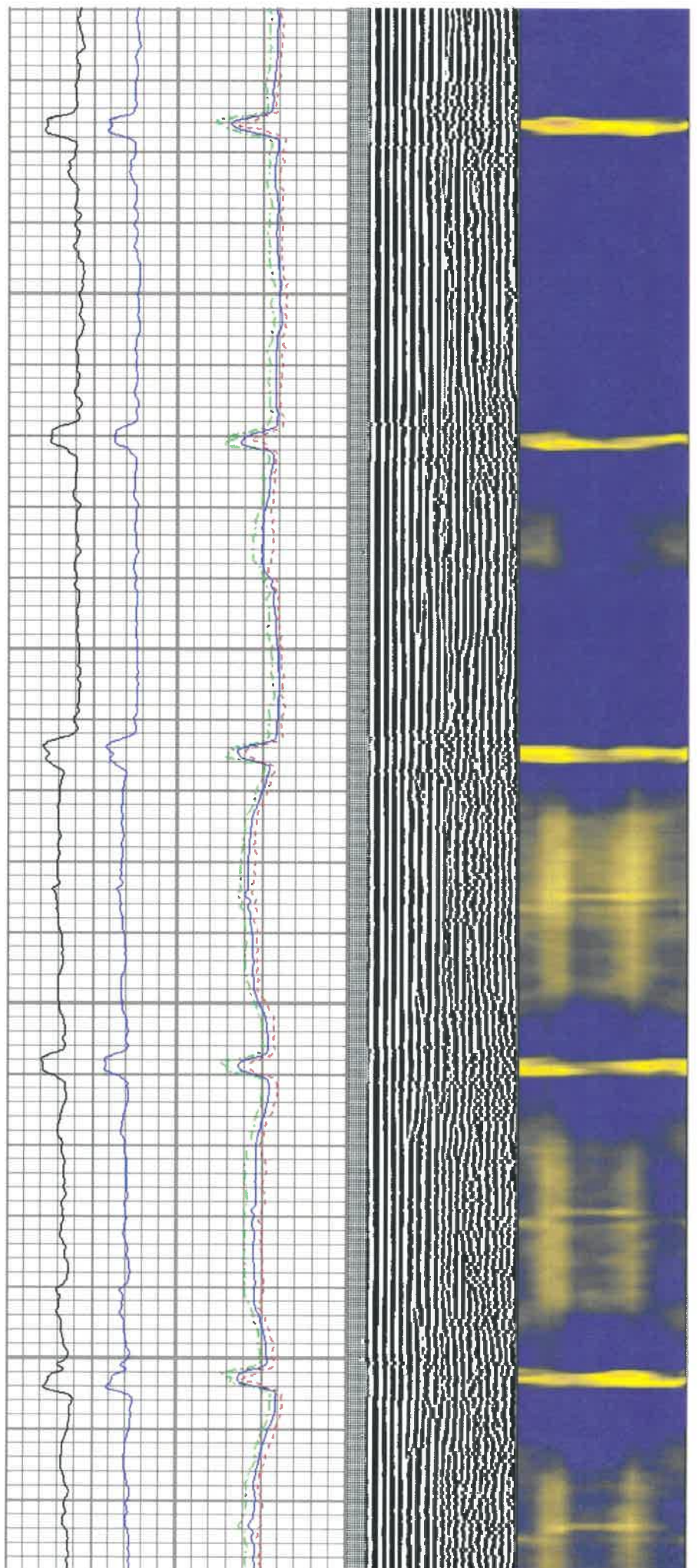
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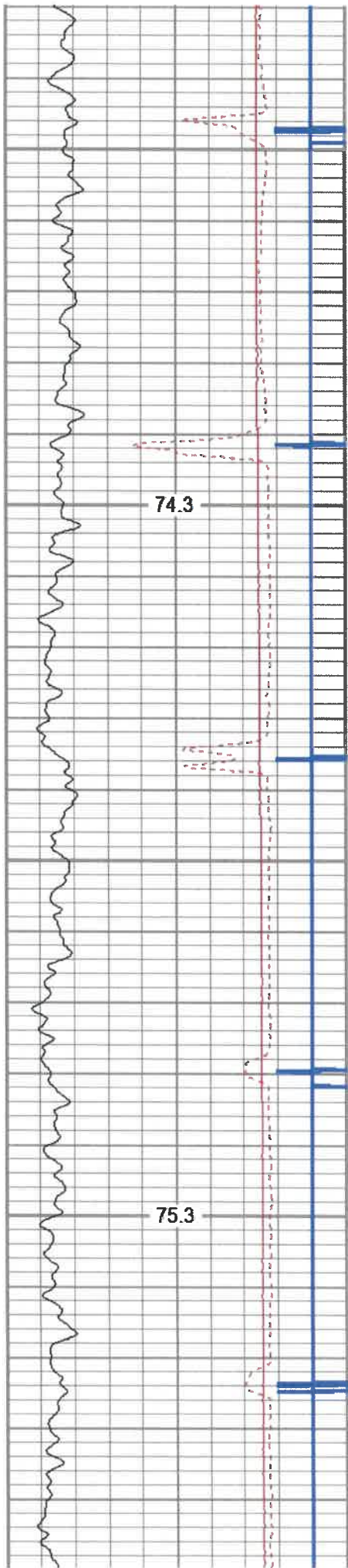




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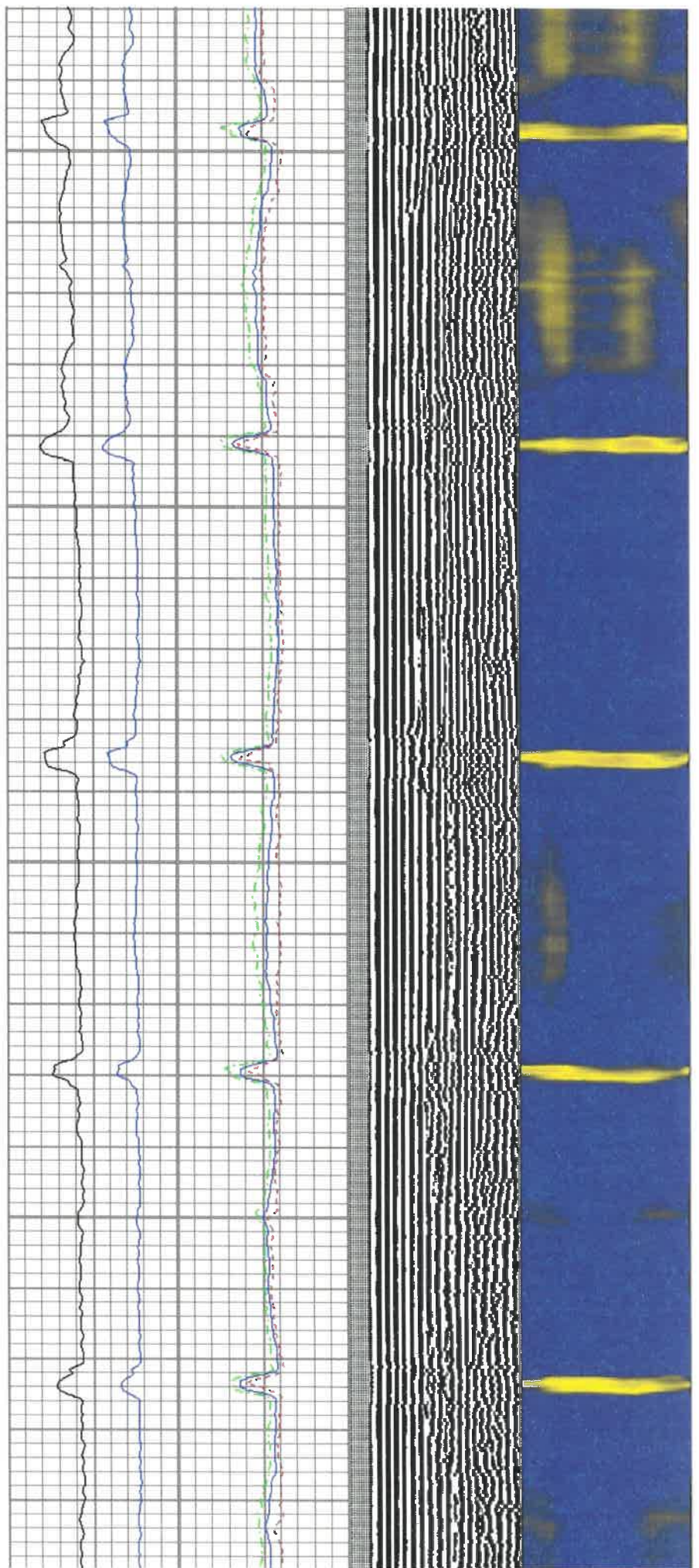
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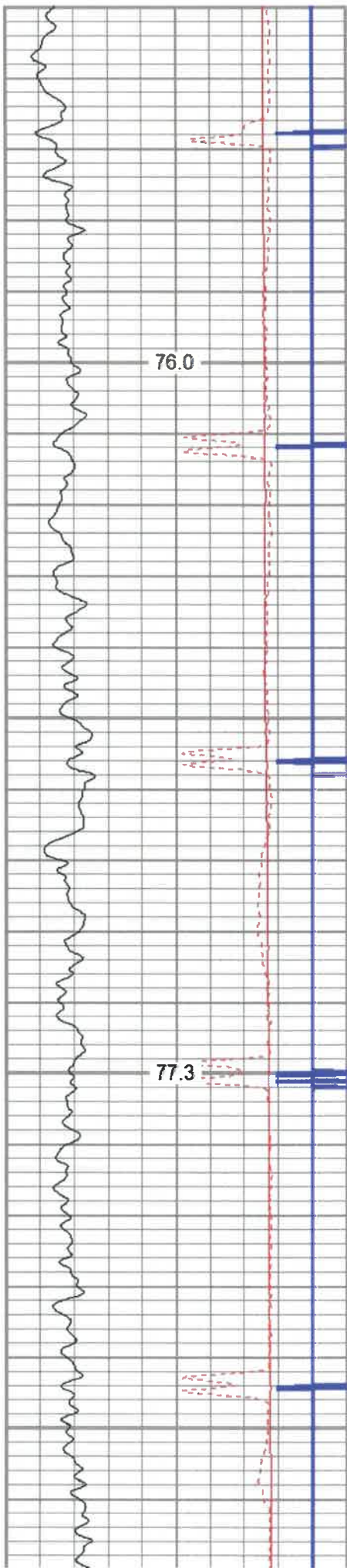




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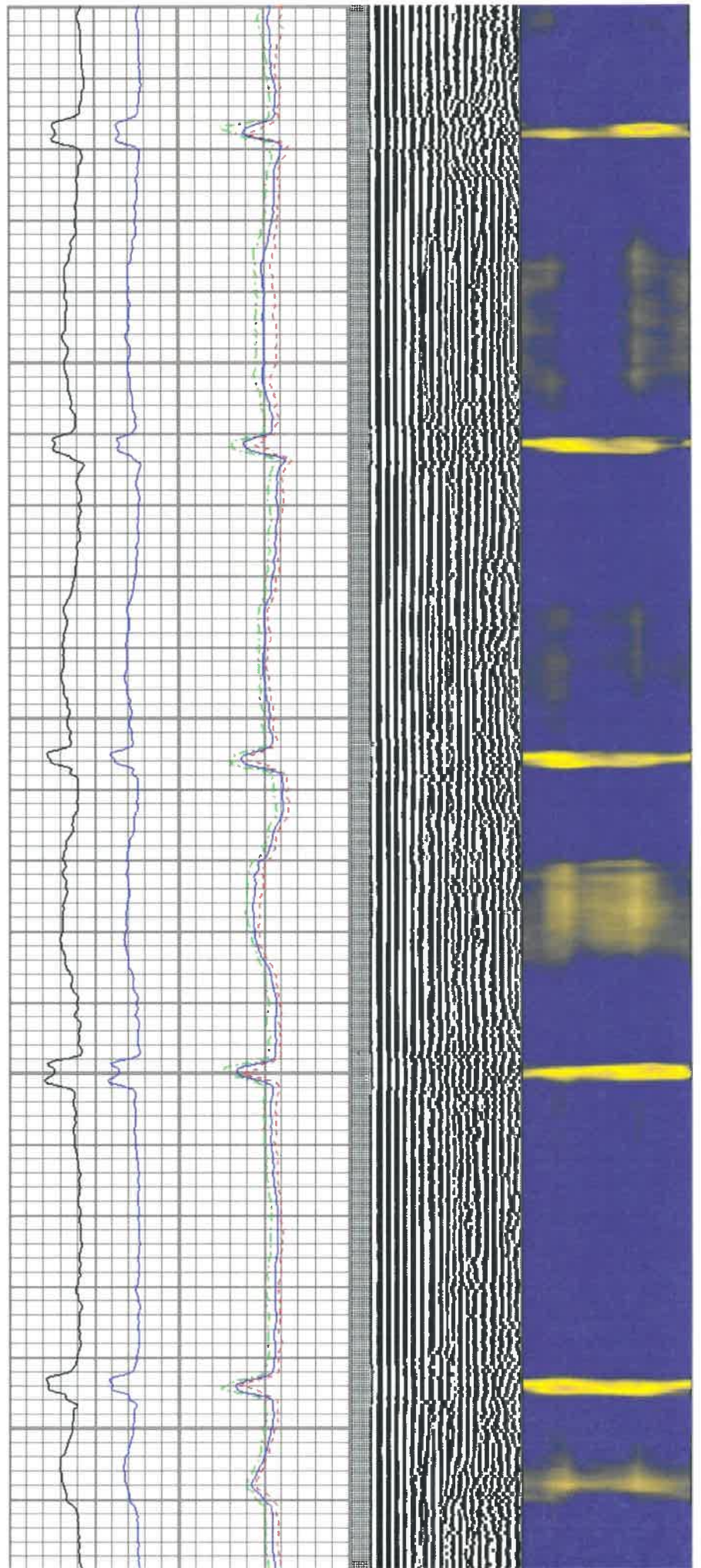
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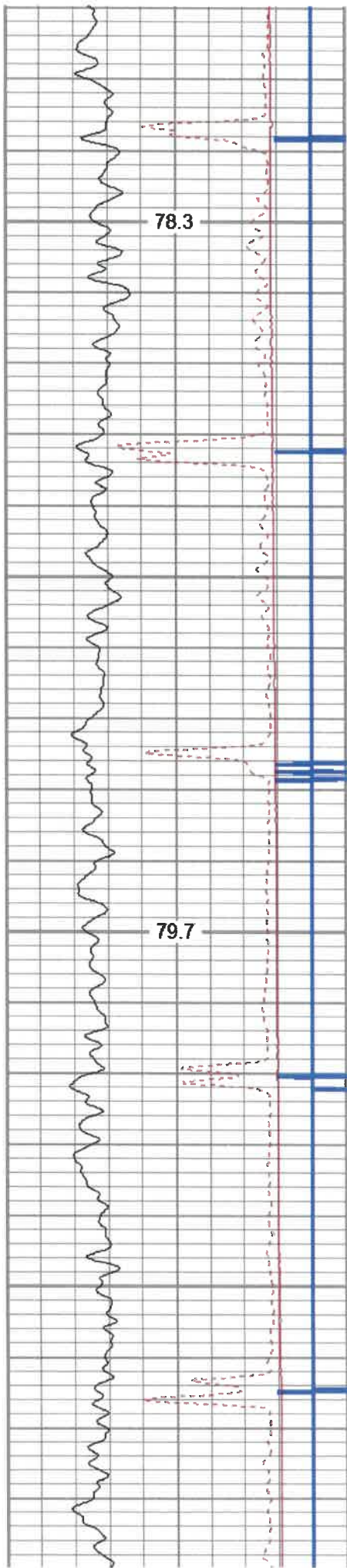




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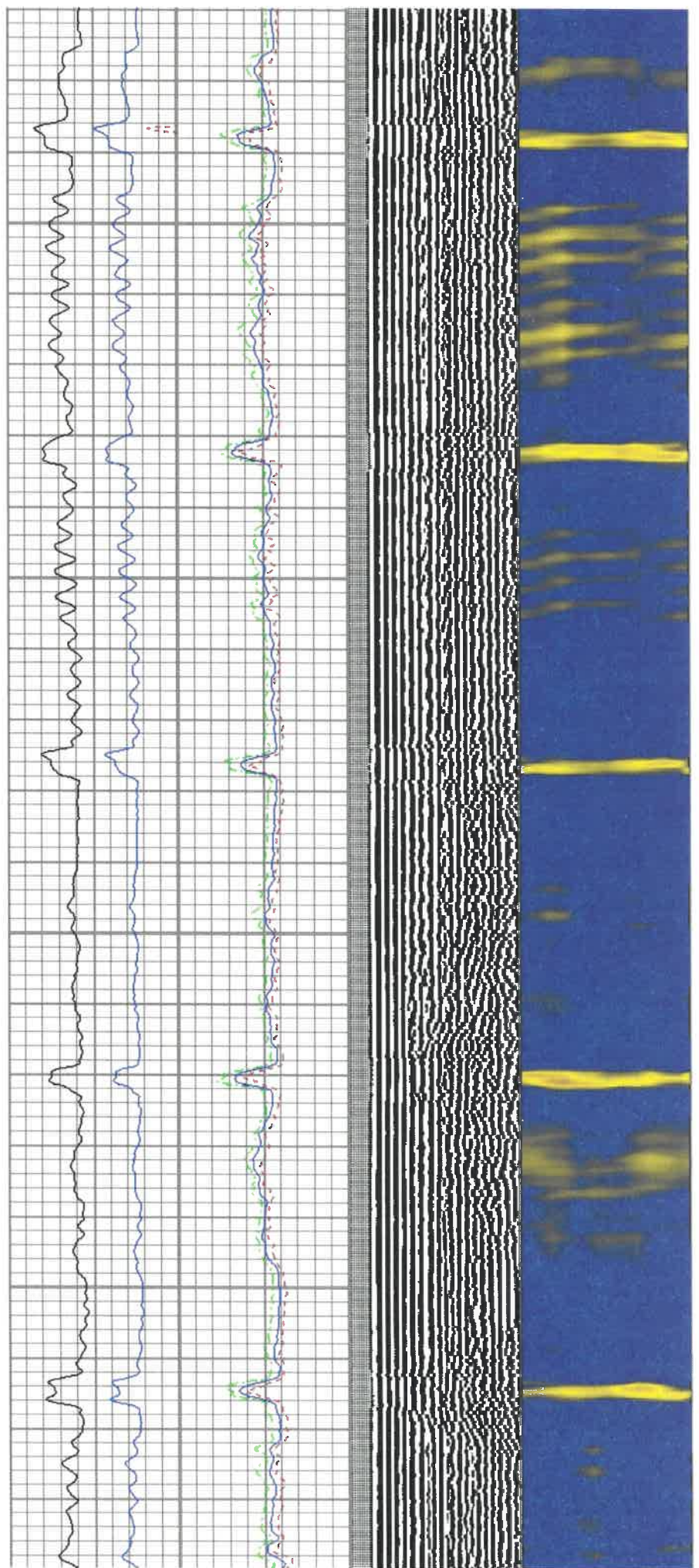
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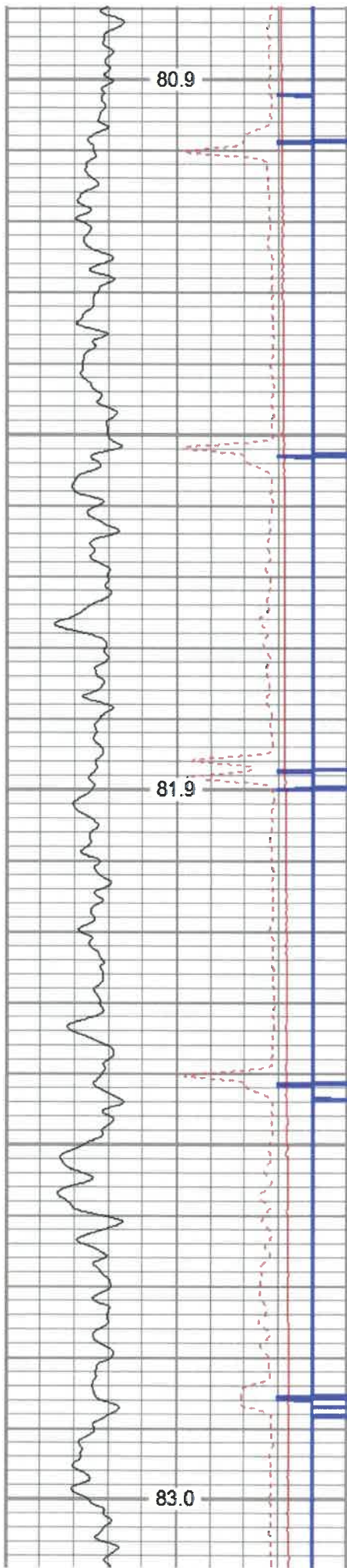




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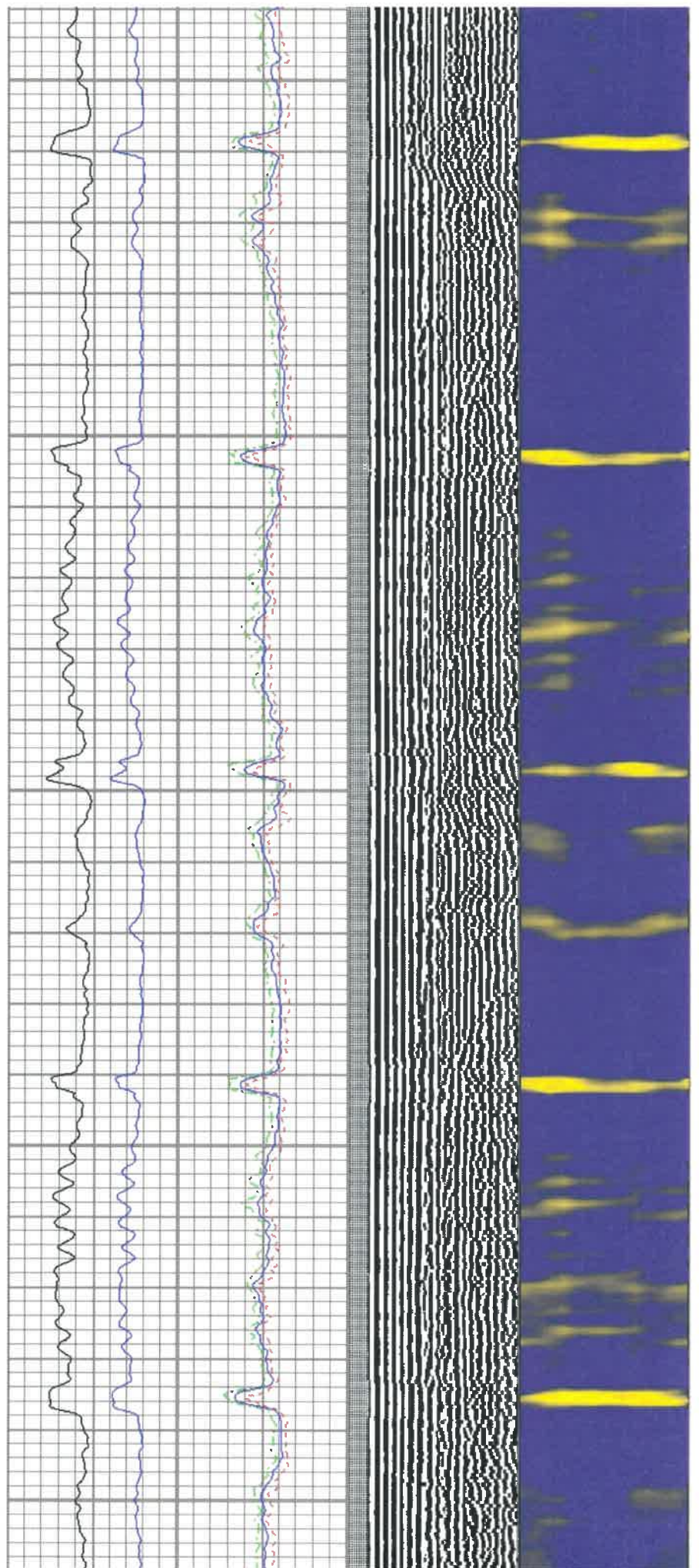


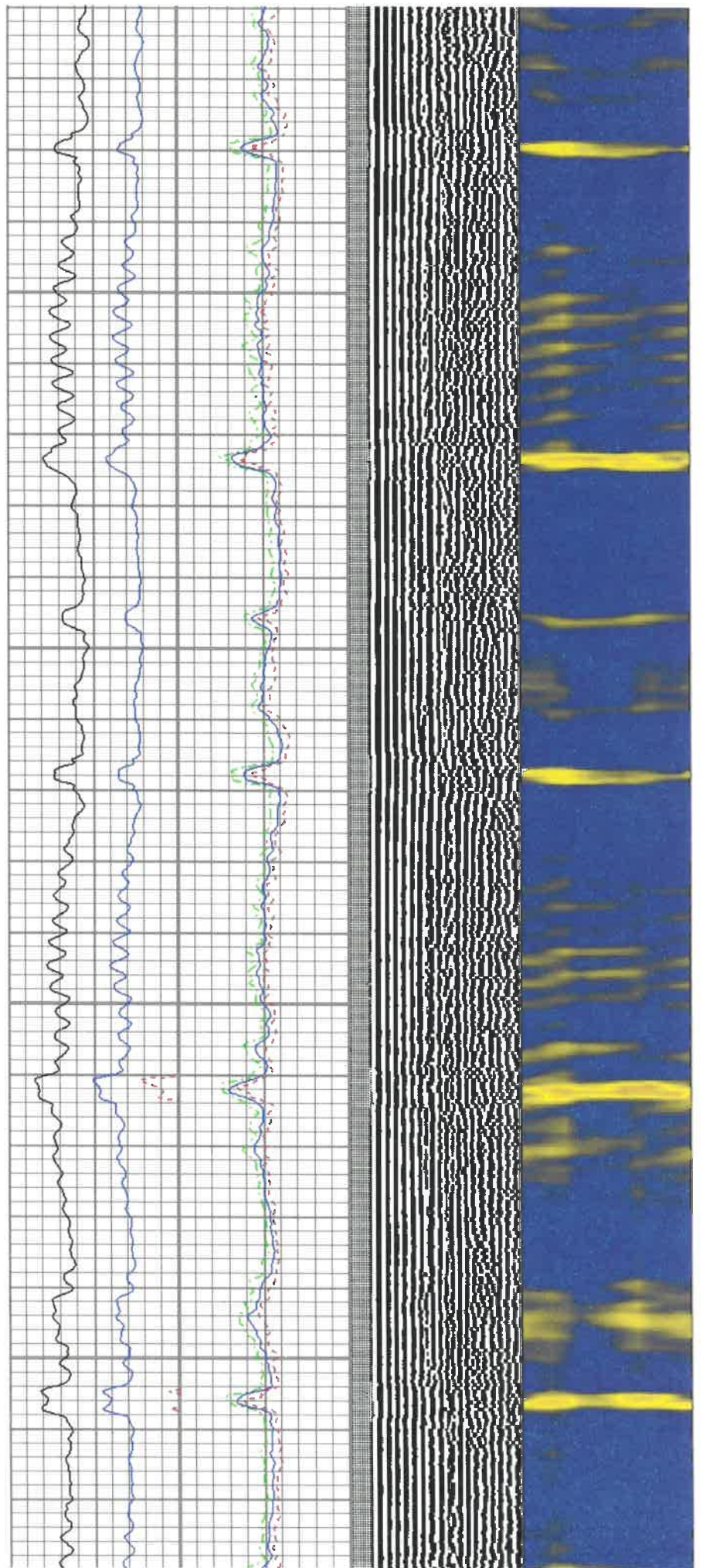
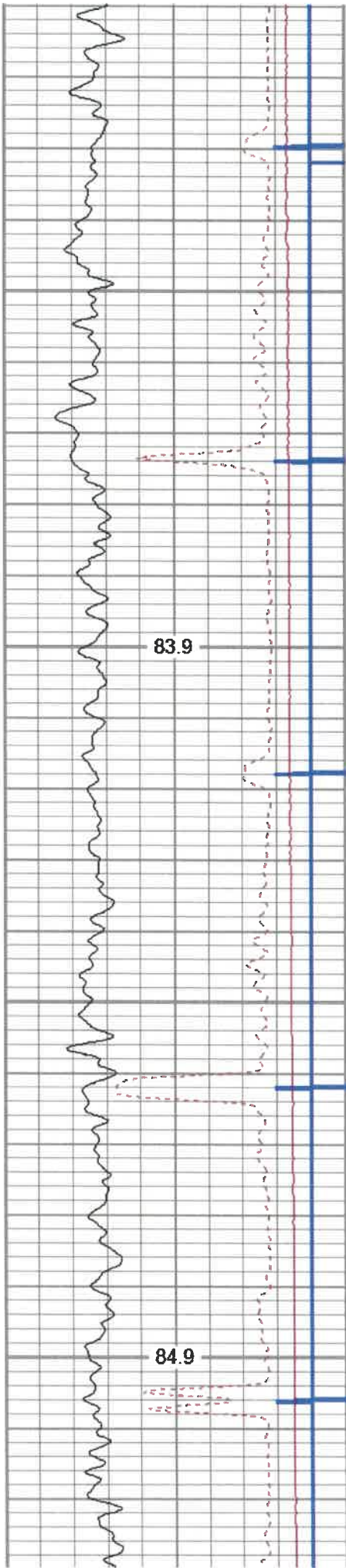


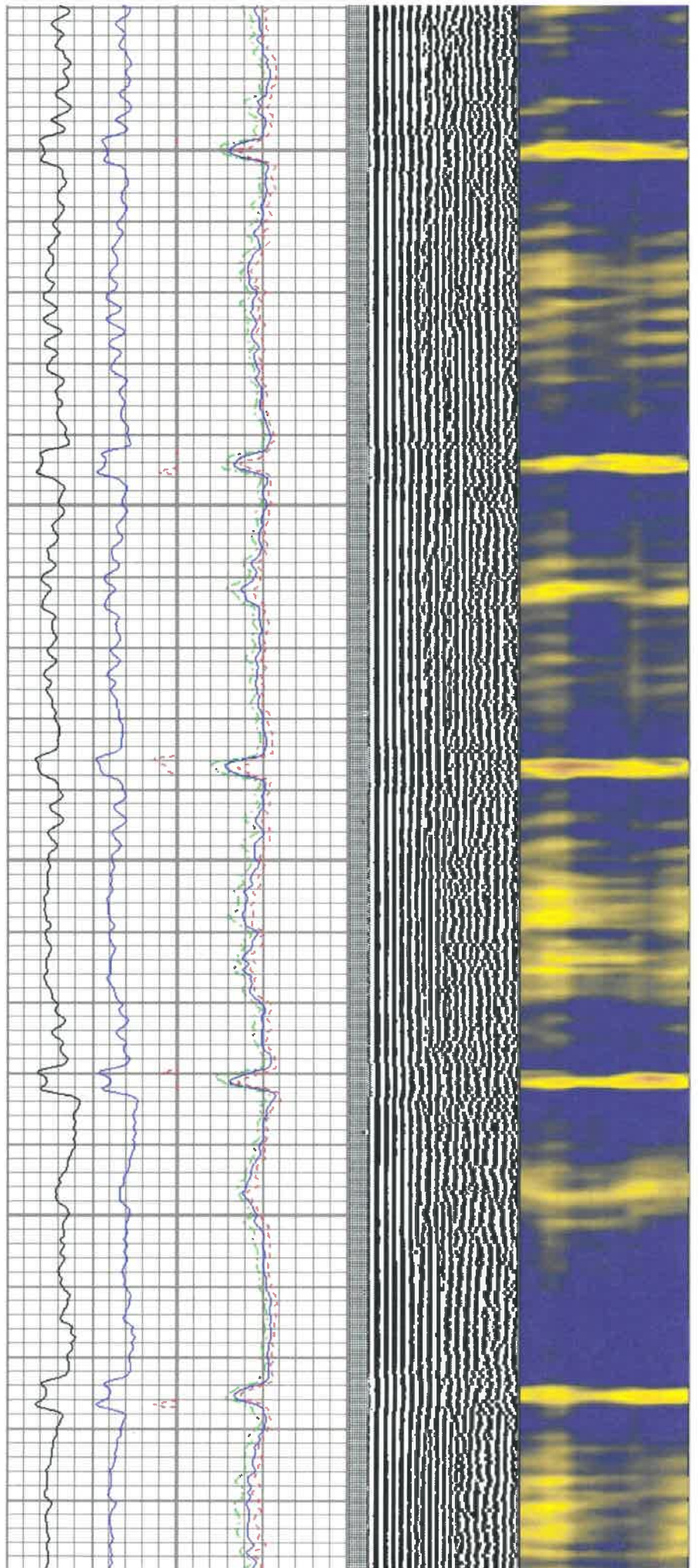
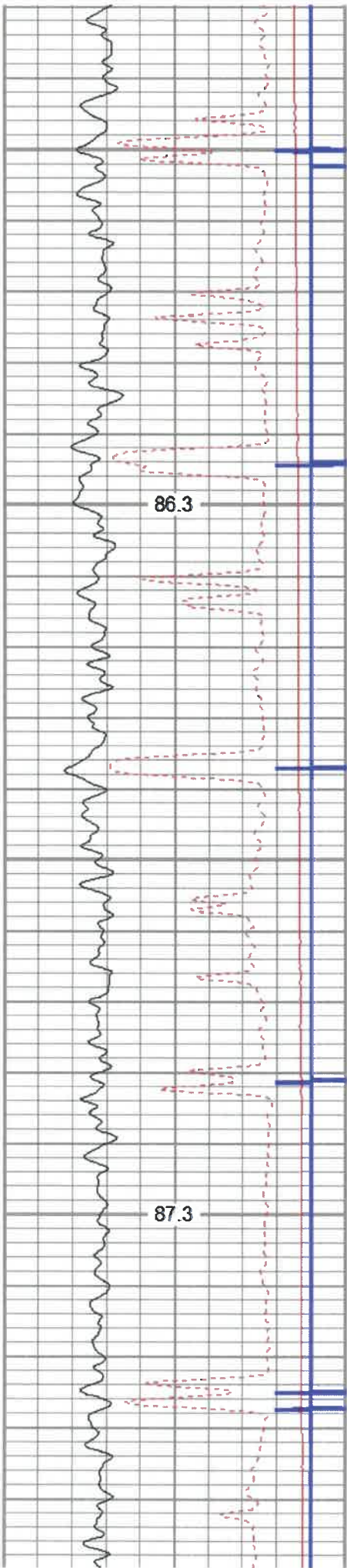
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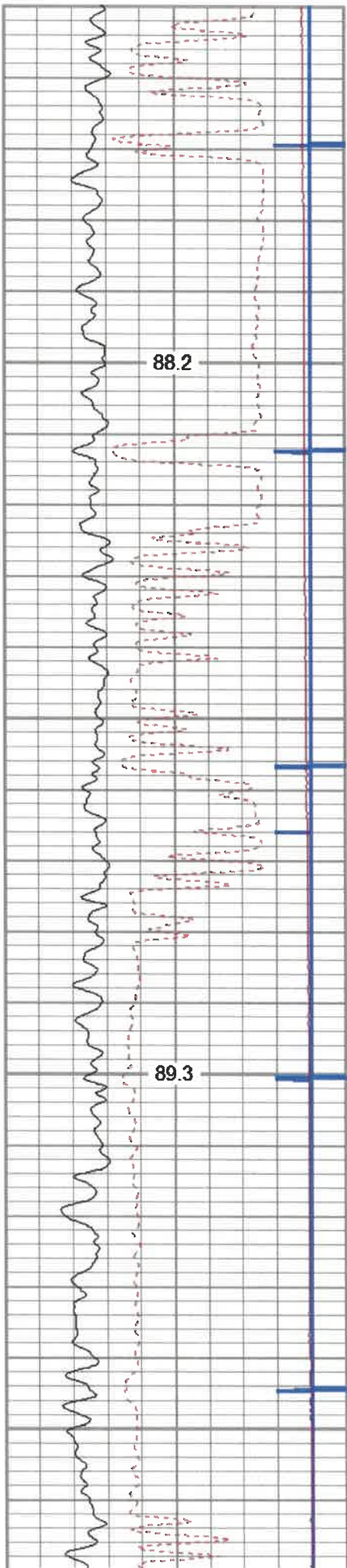
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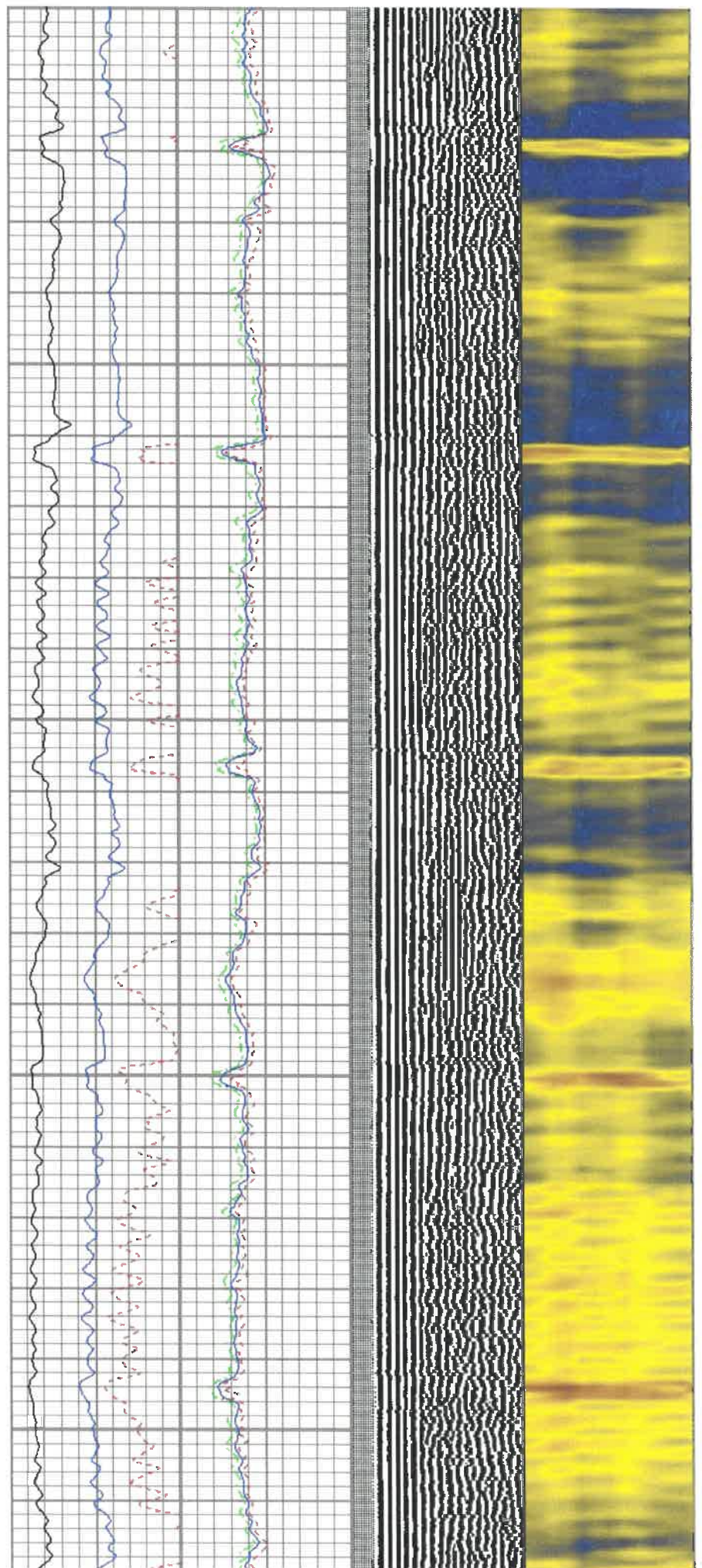


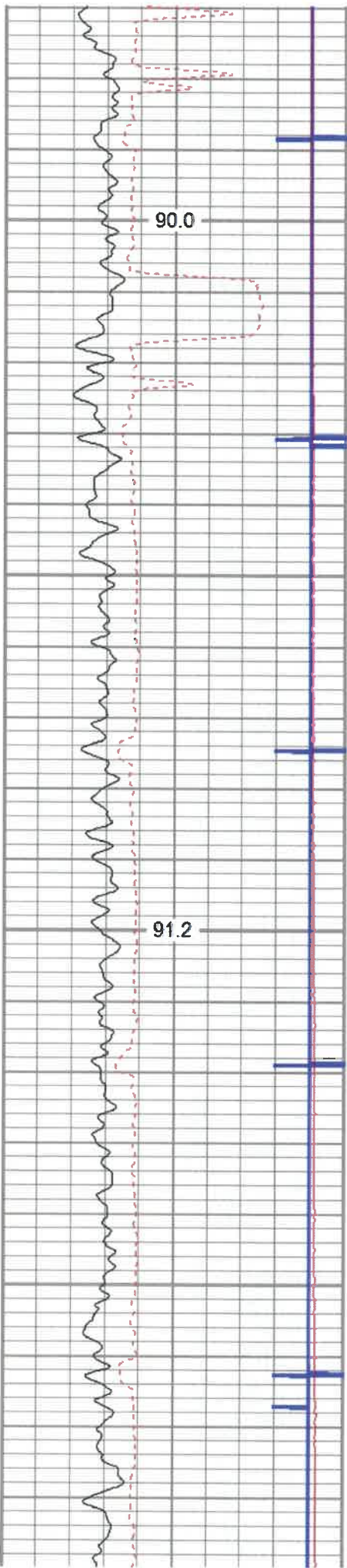




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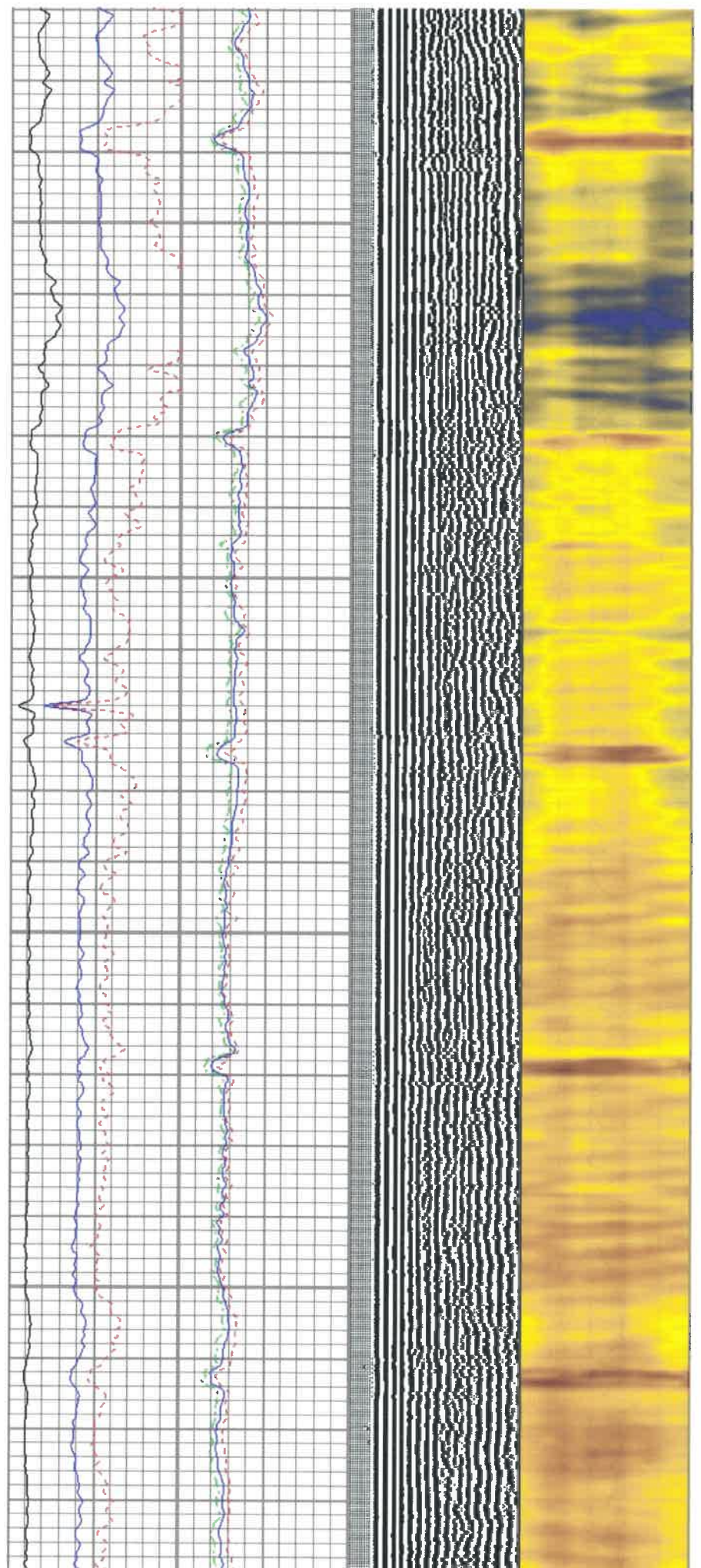
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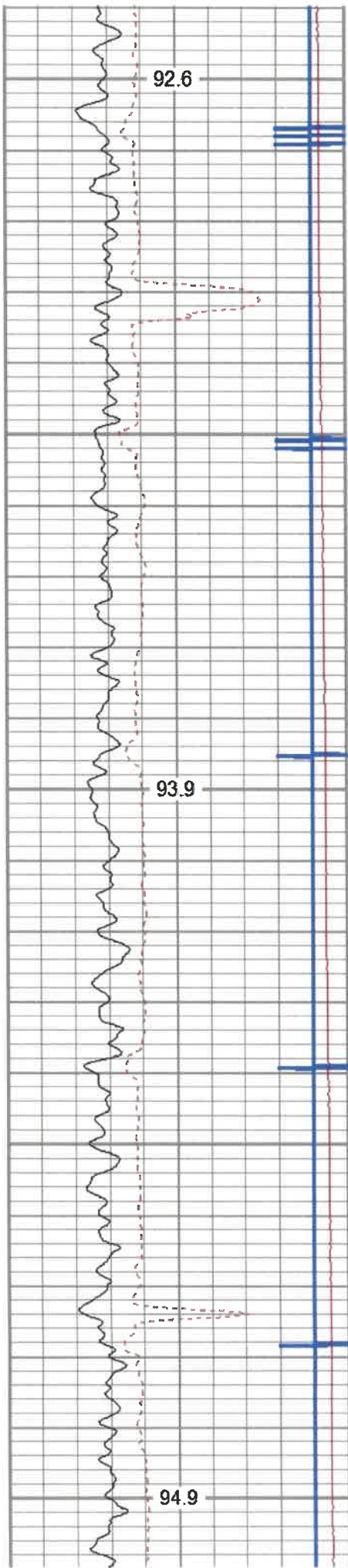




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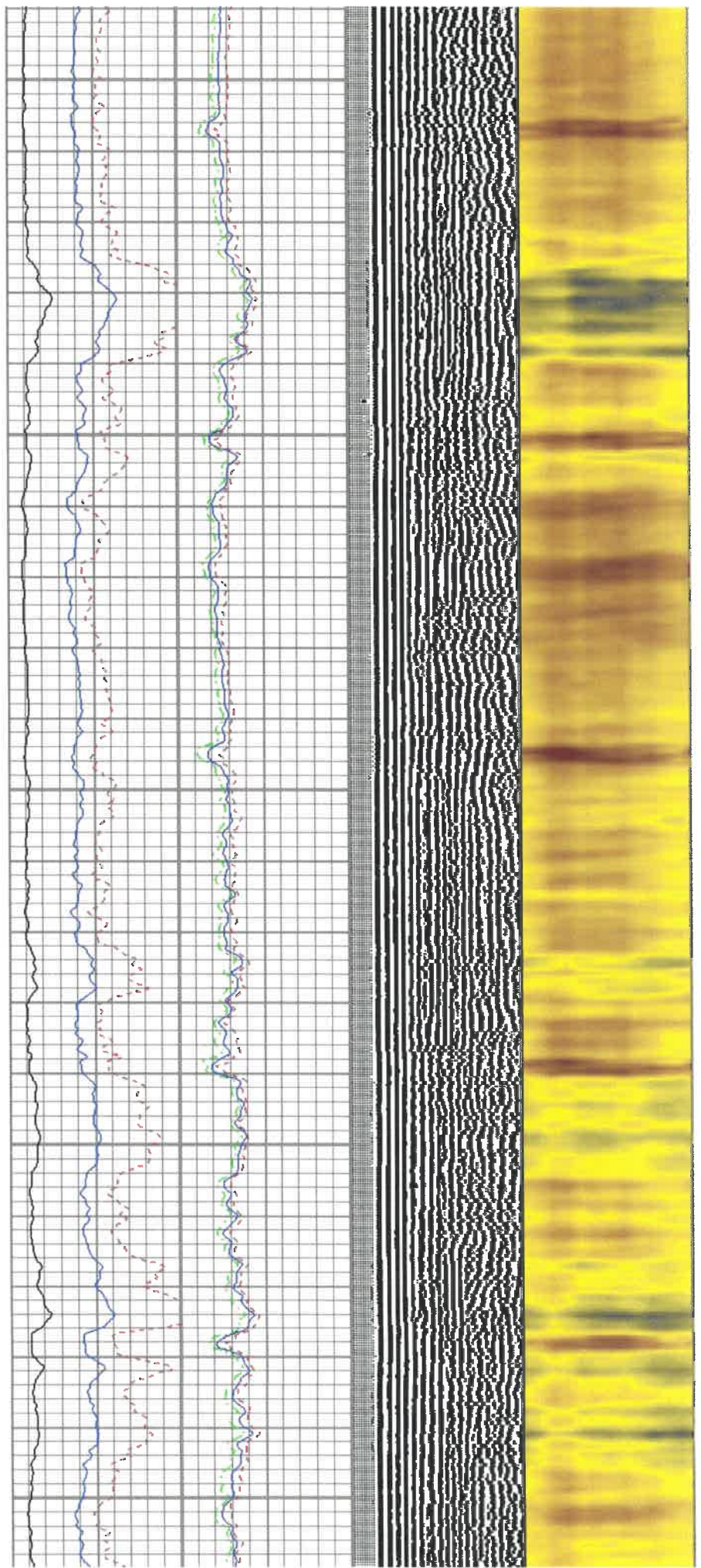


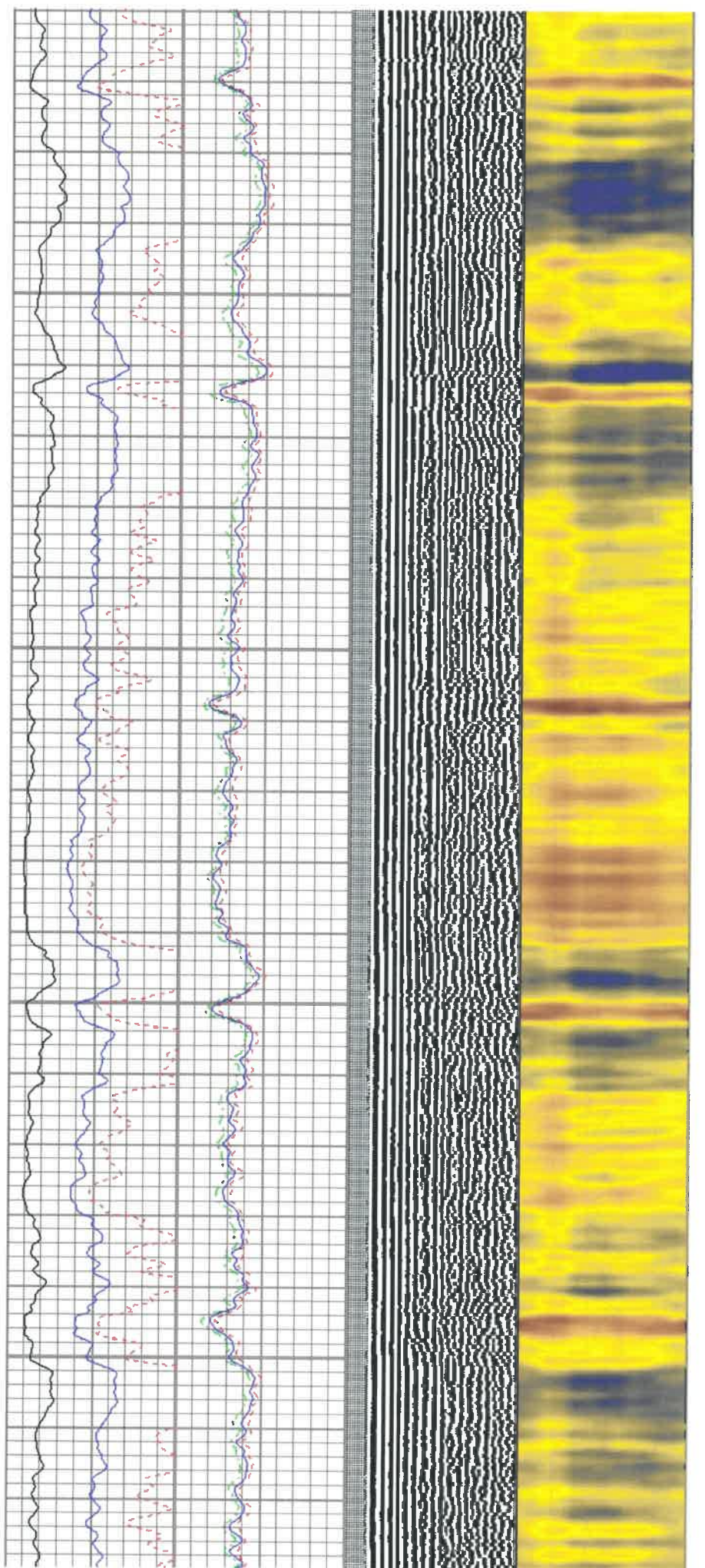
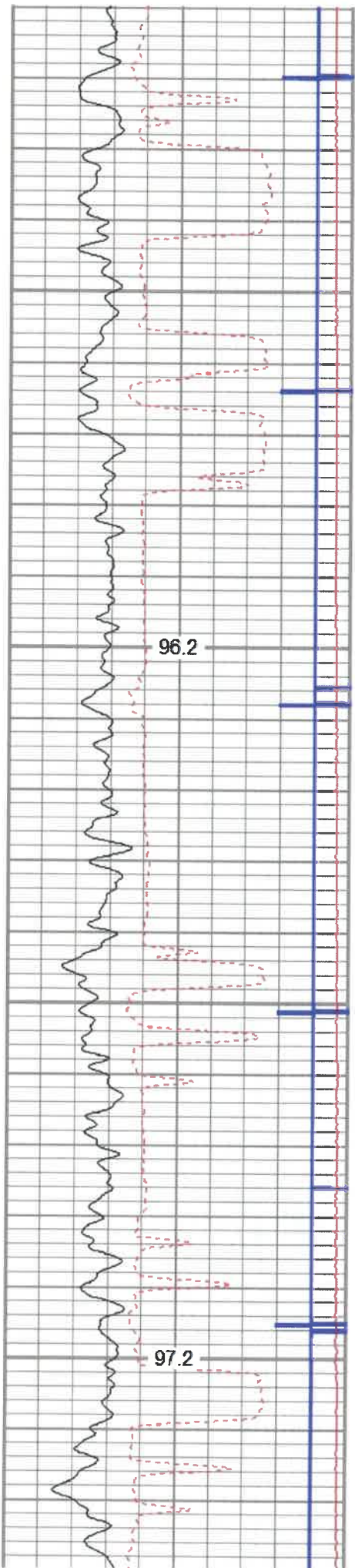


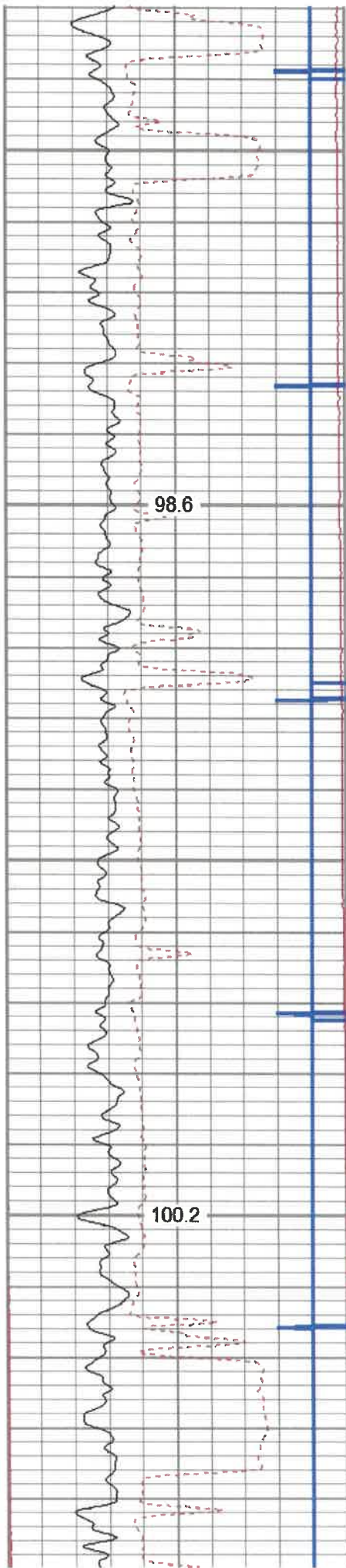
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4200

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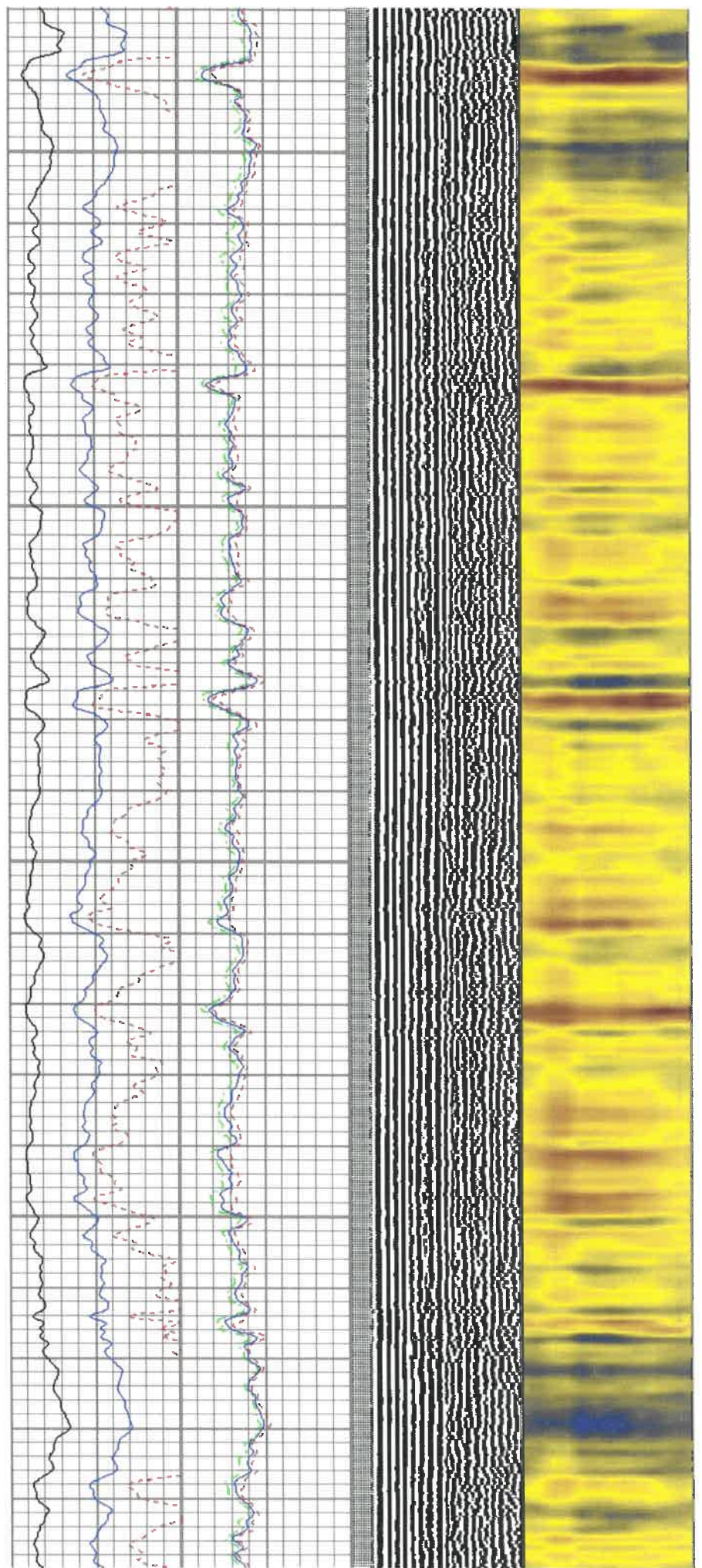


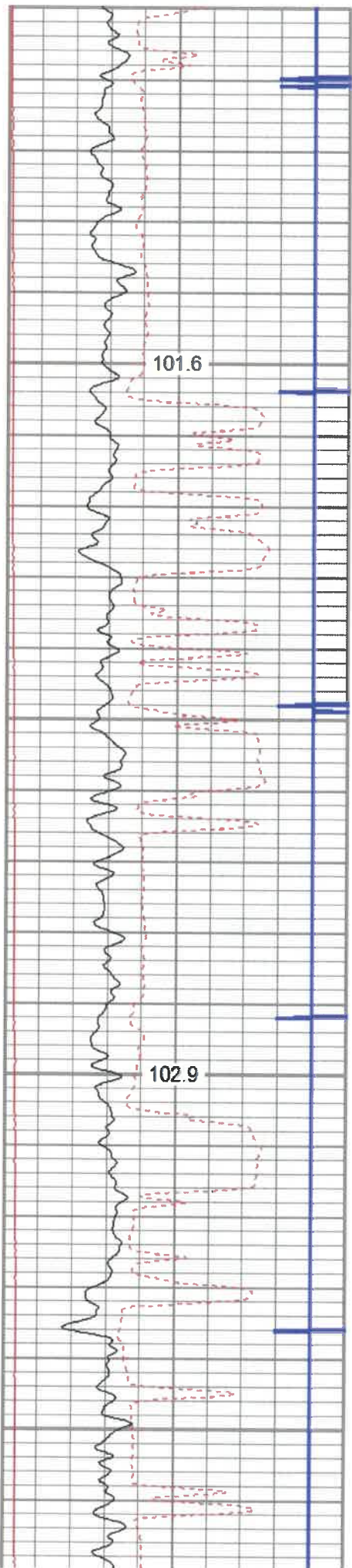




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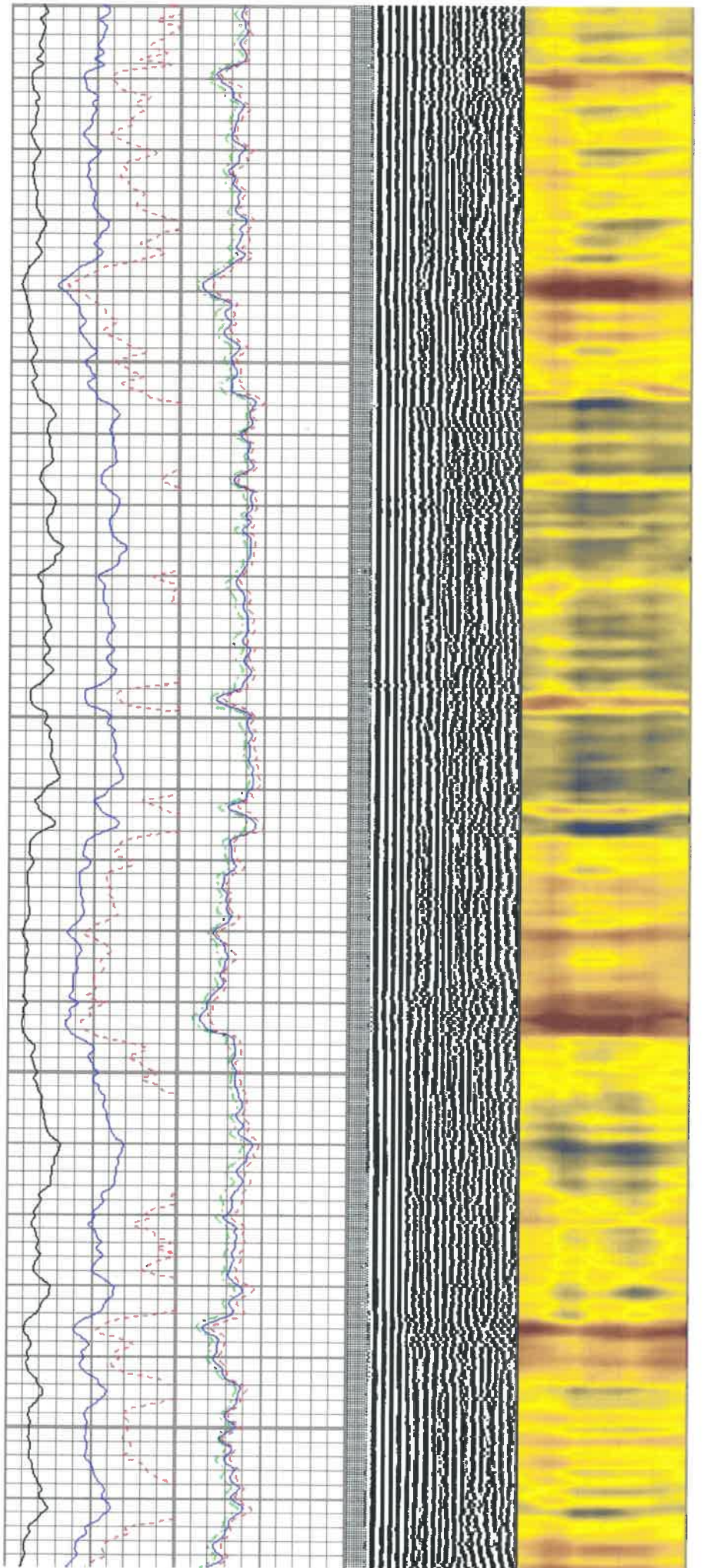
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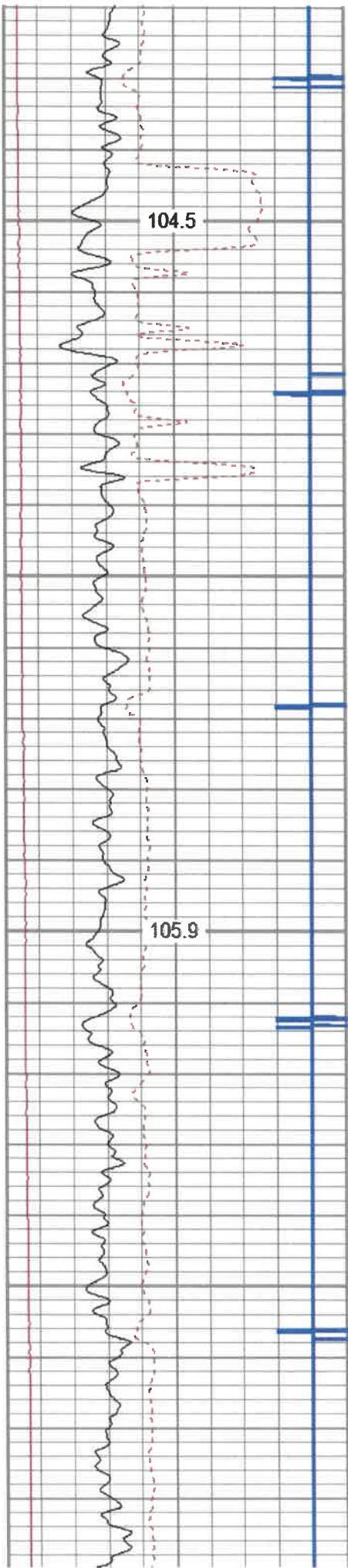




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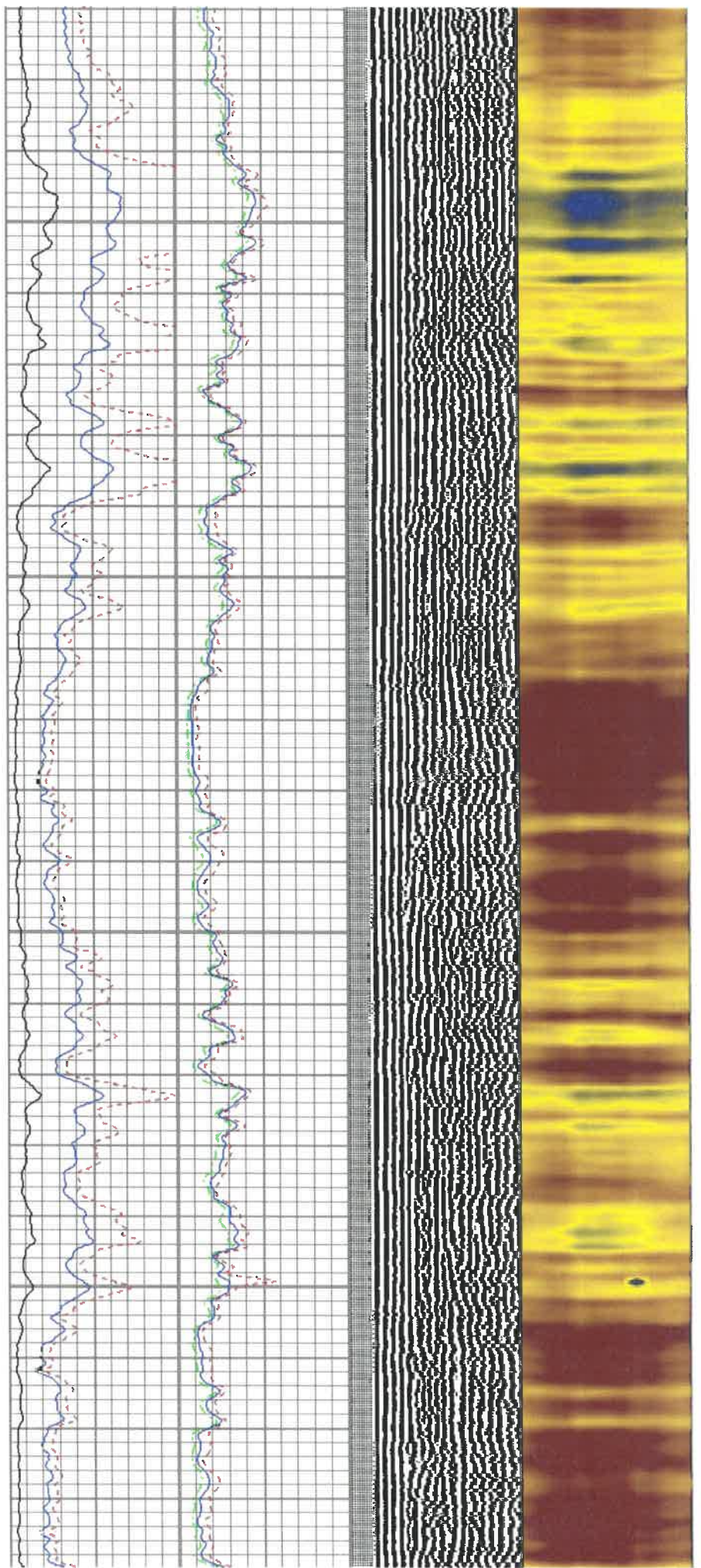
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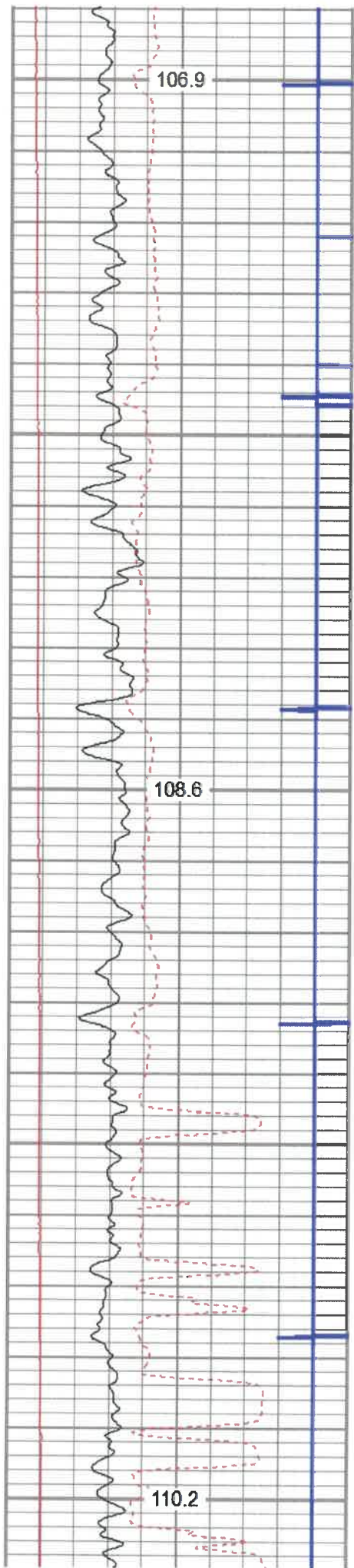




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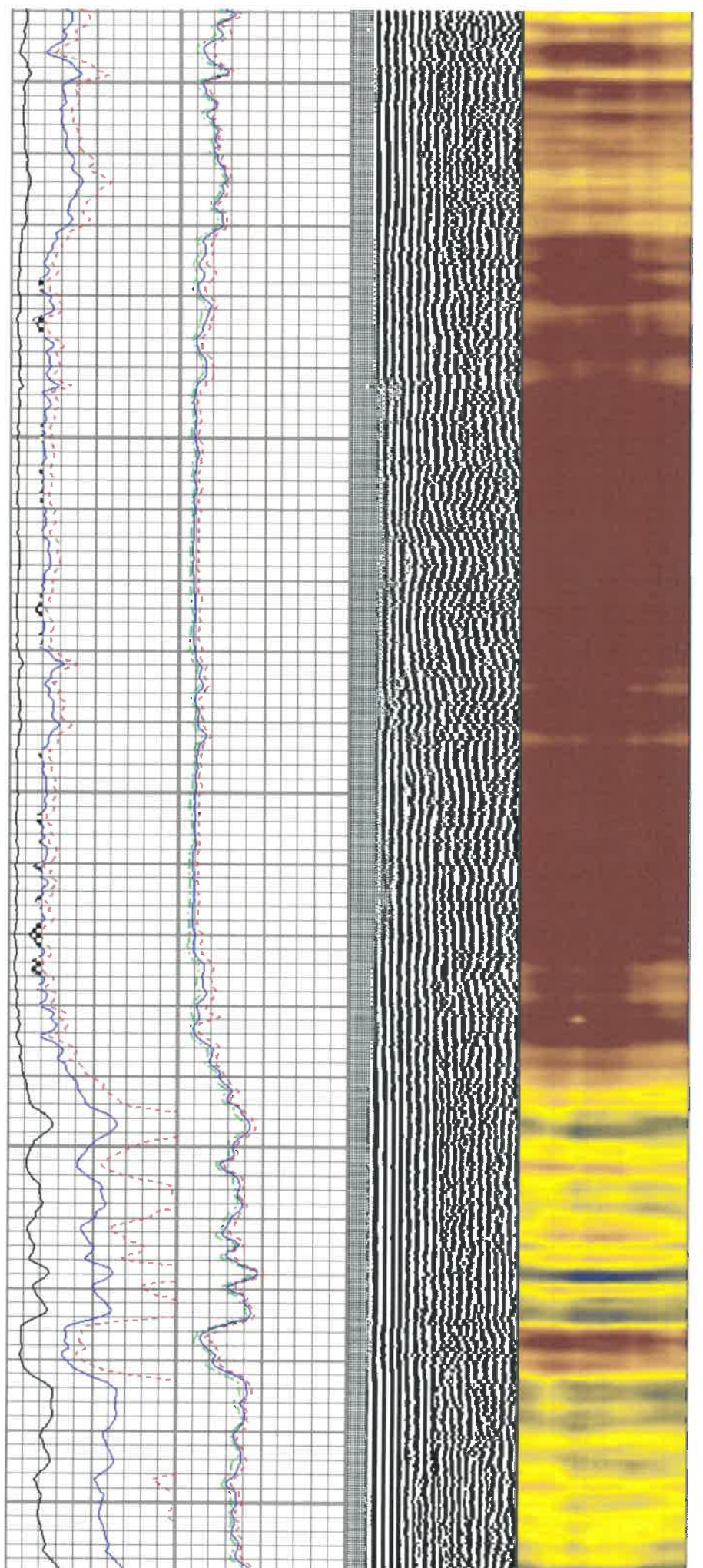


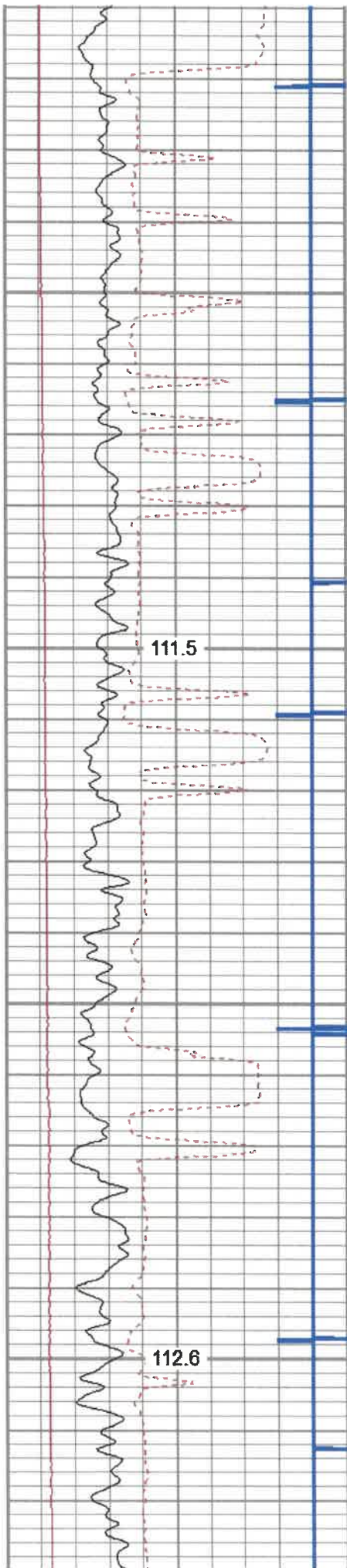


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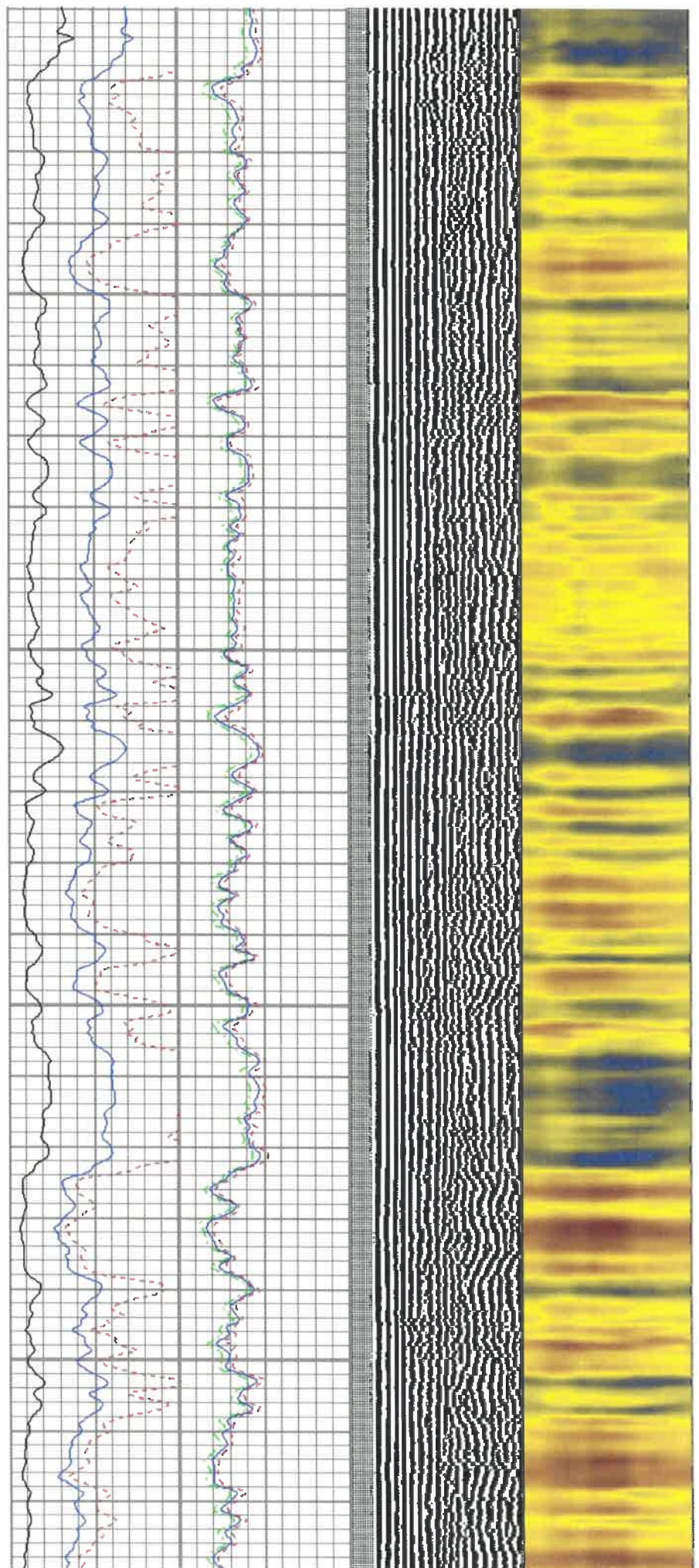
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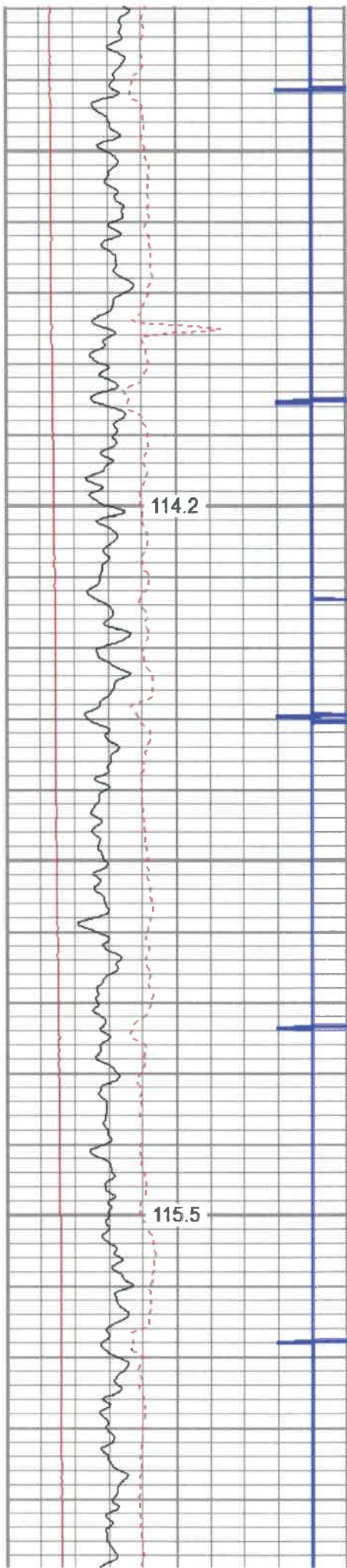




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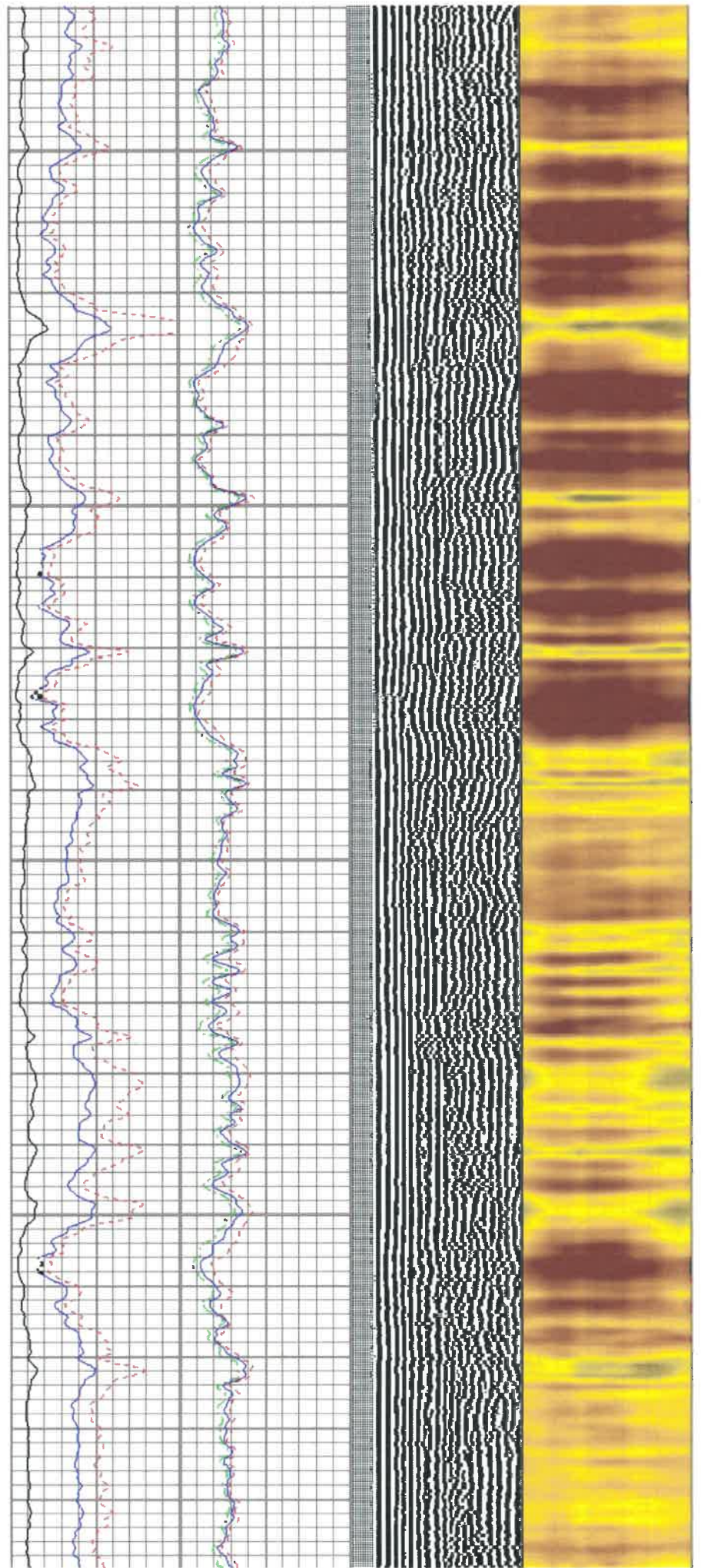
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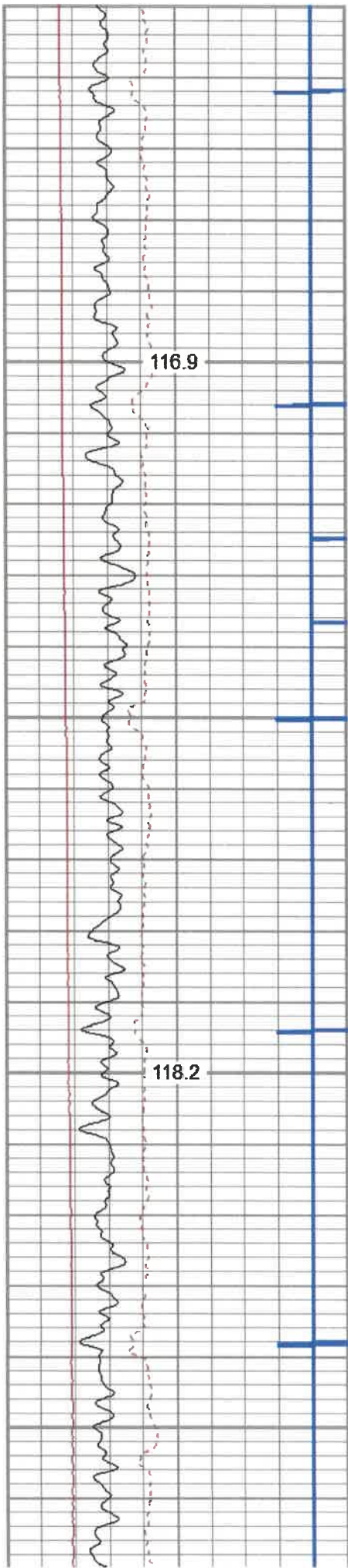




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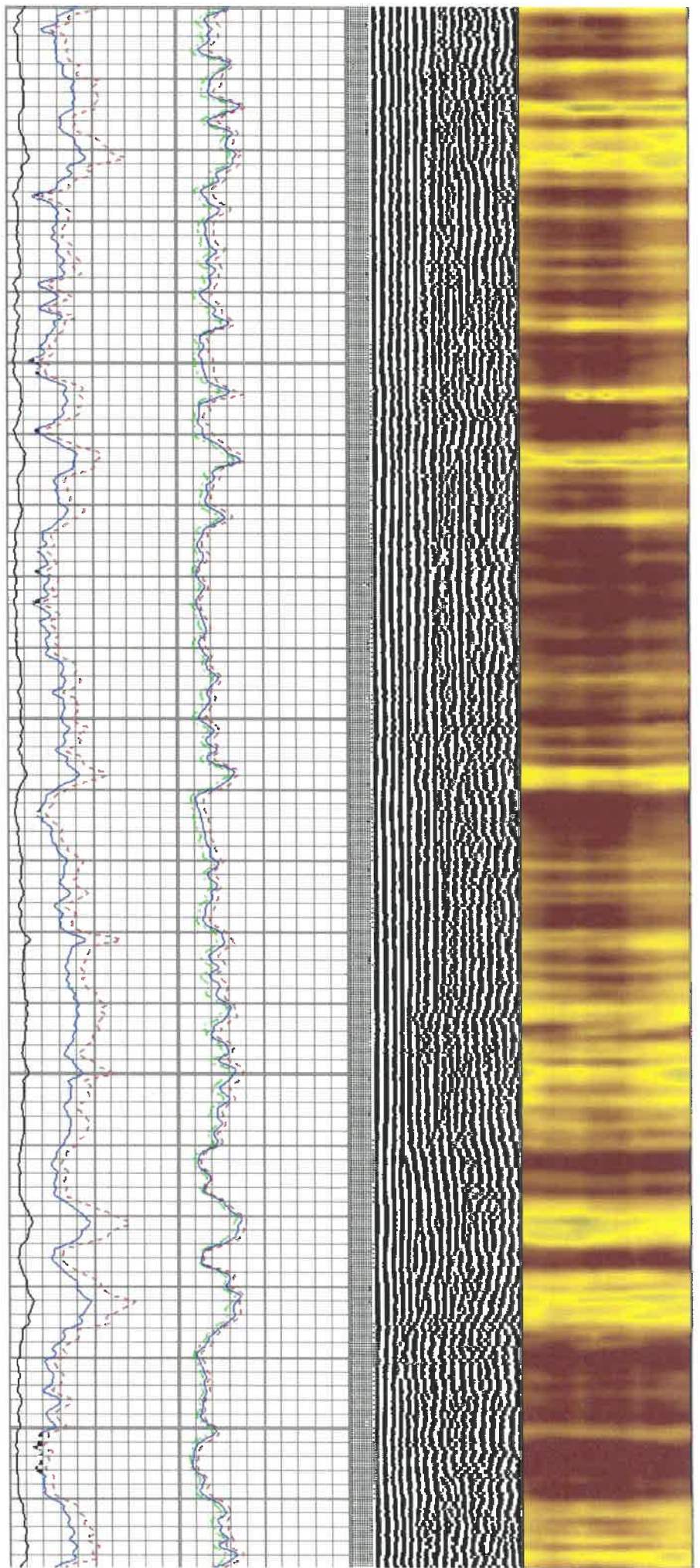
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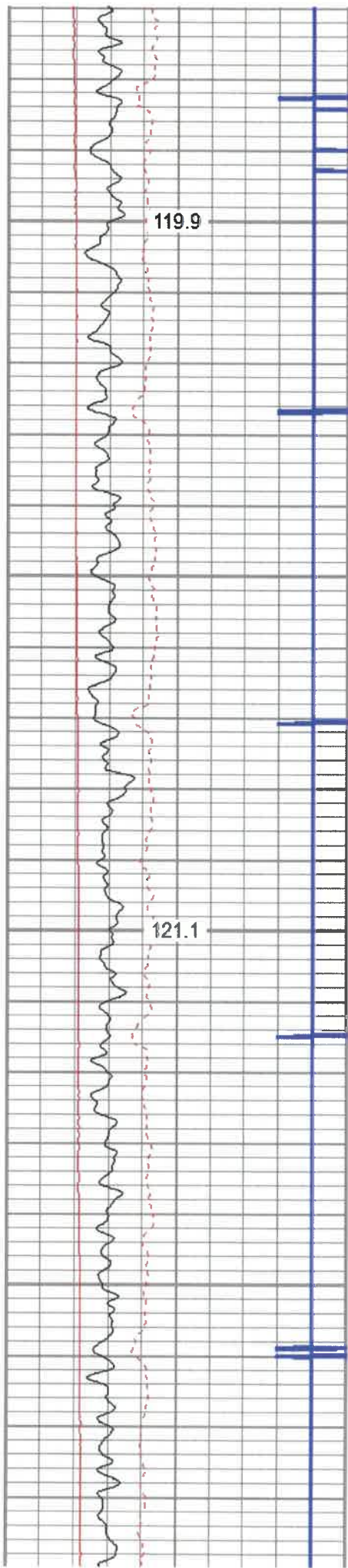




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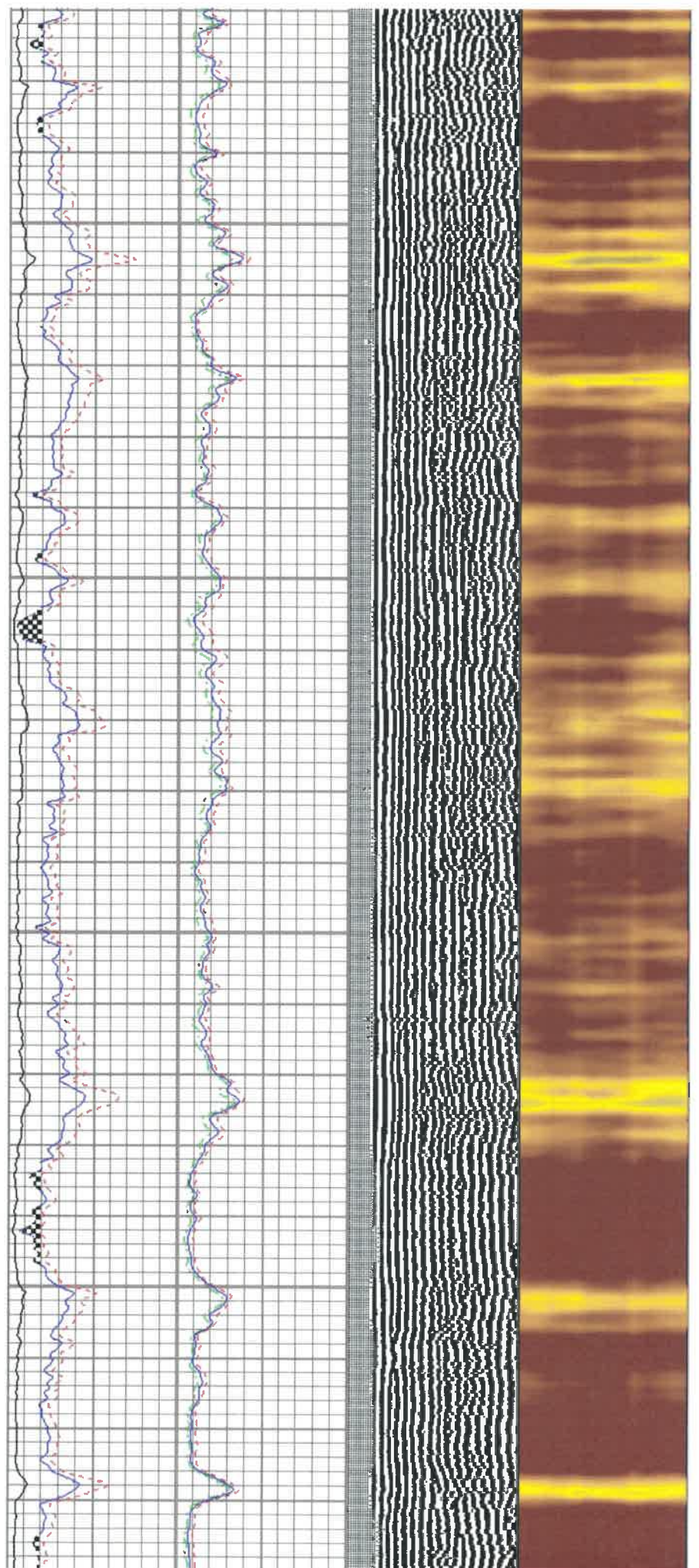
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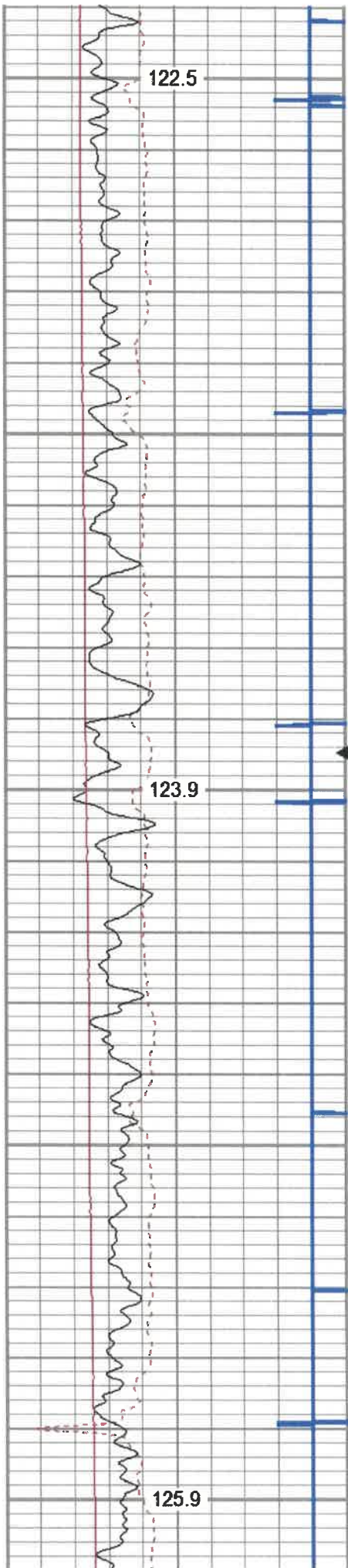




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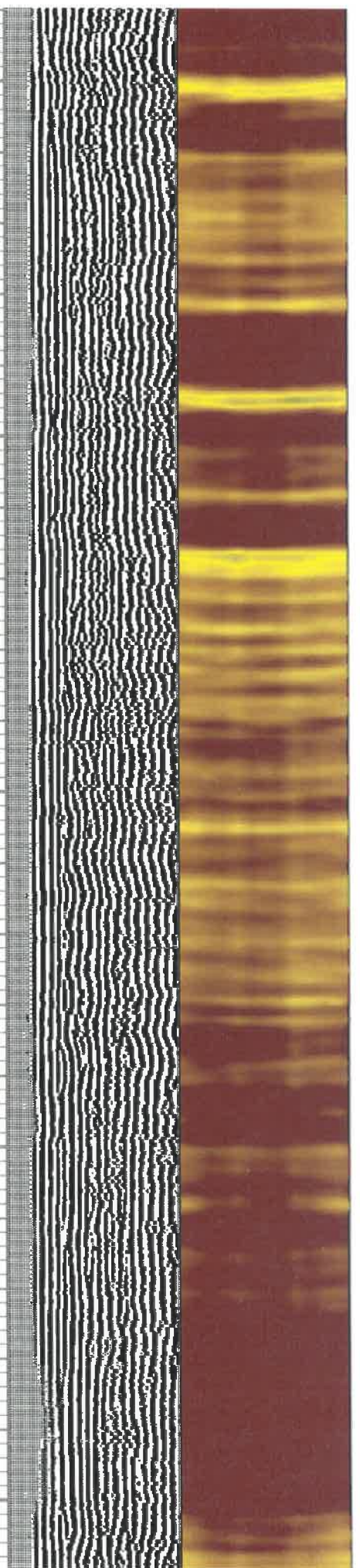
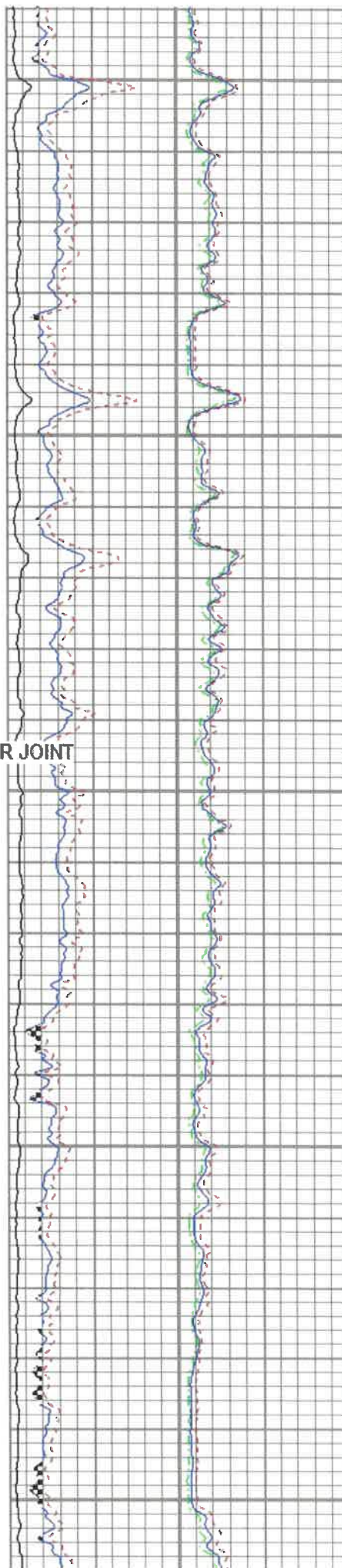


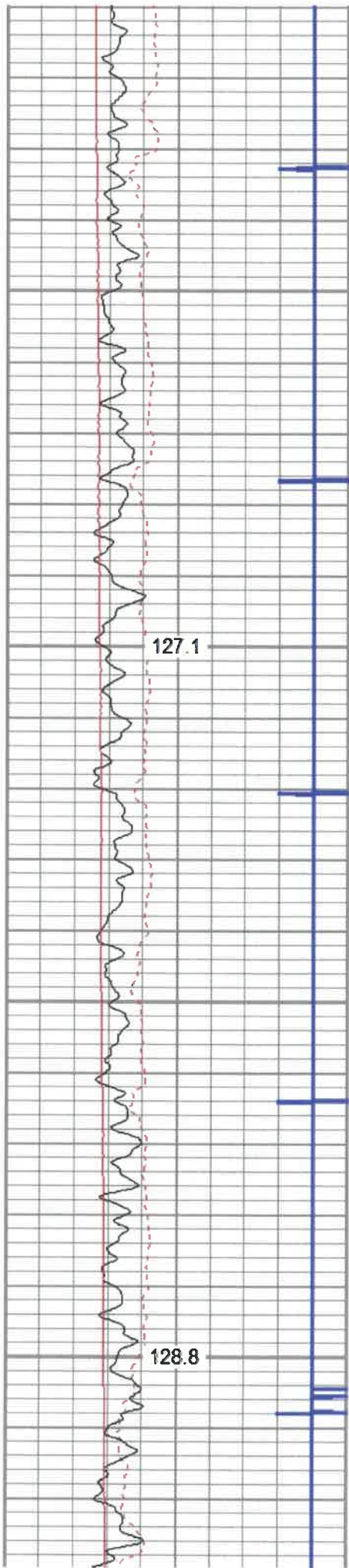
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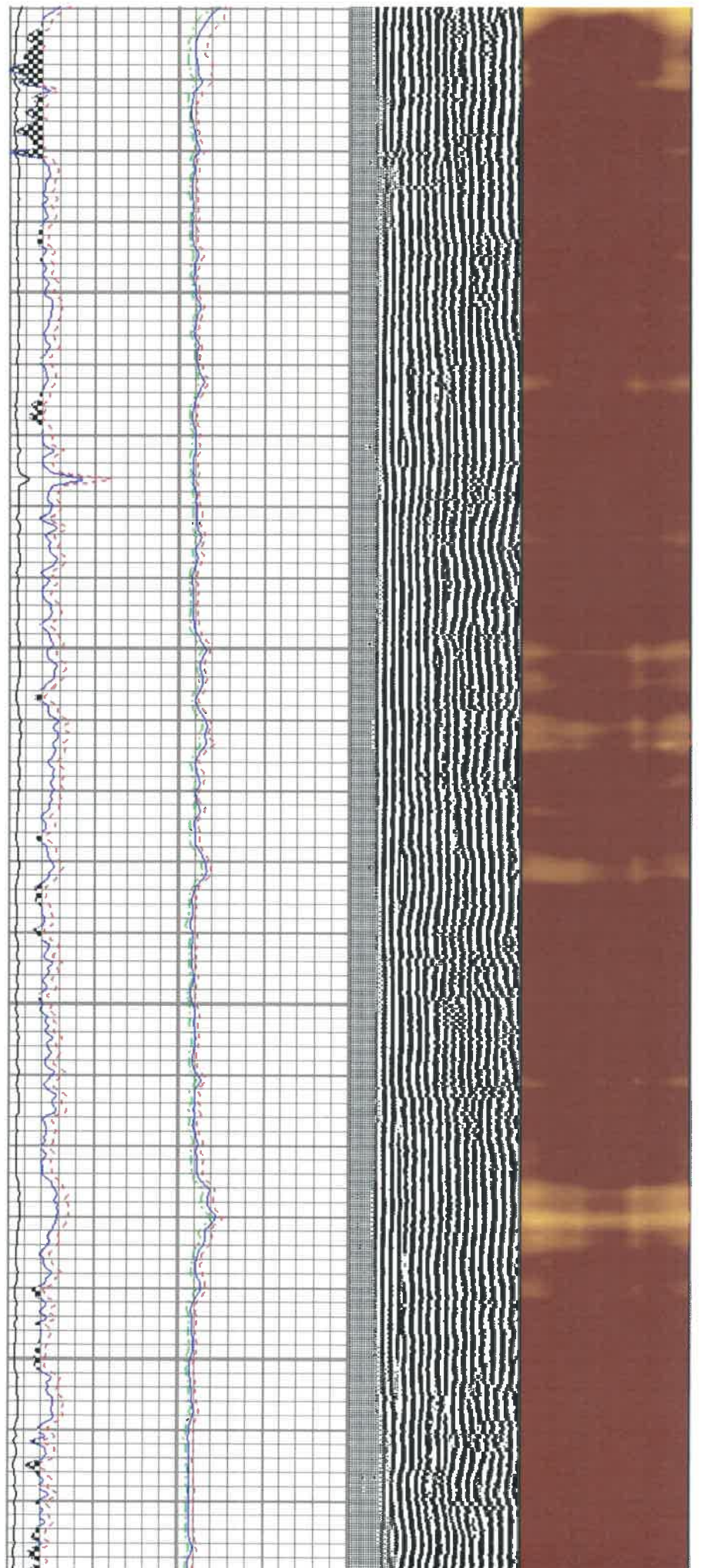
MARKER JOINT

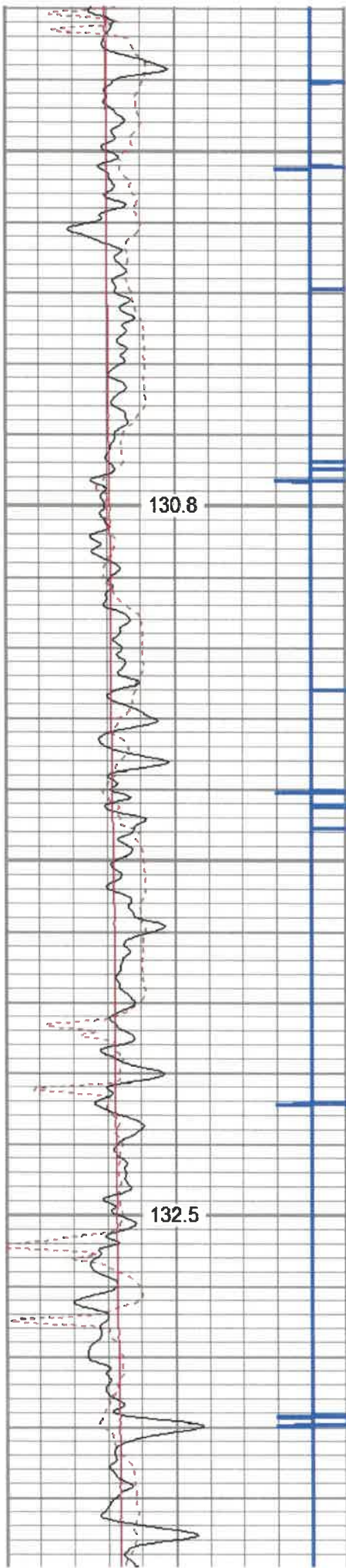




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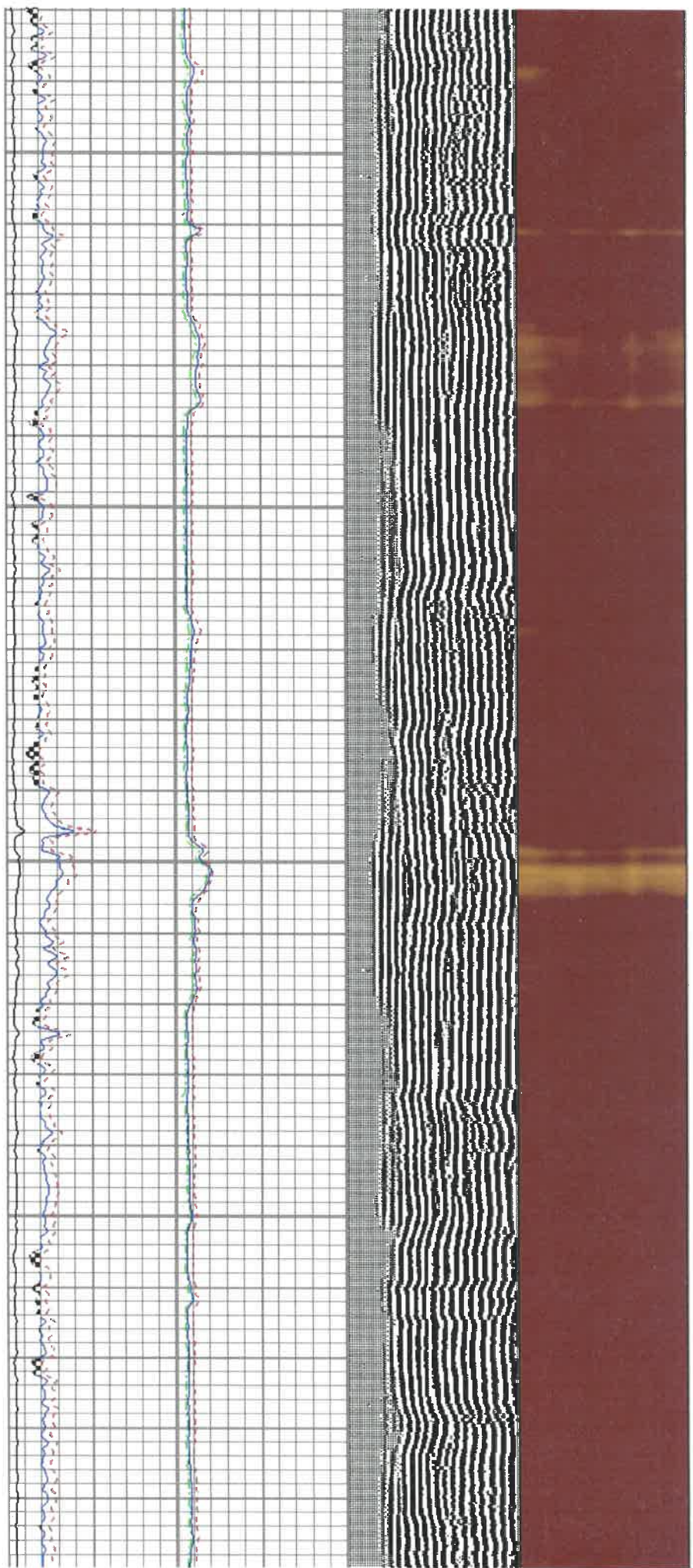
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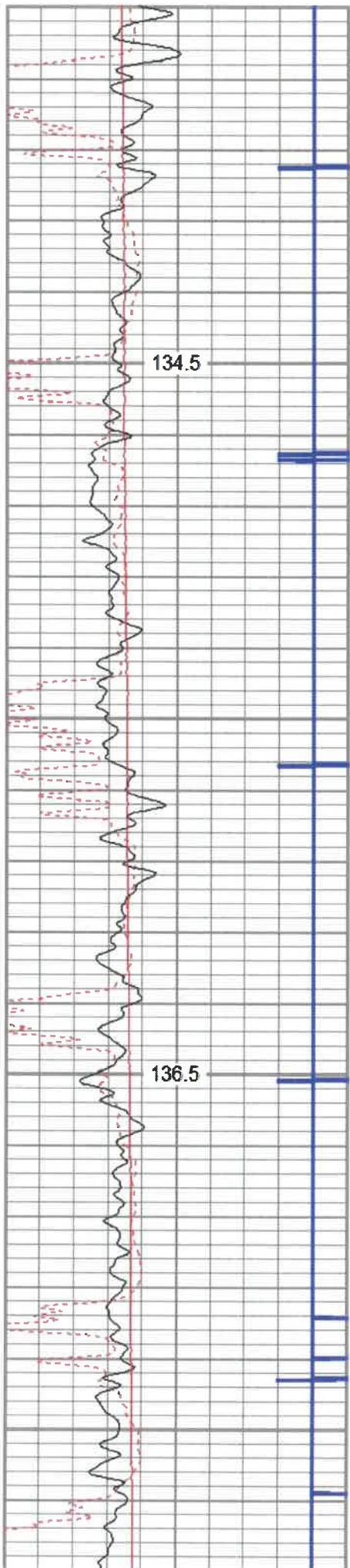




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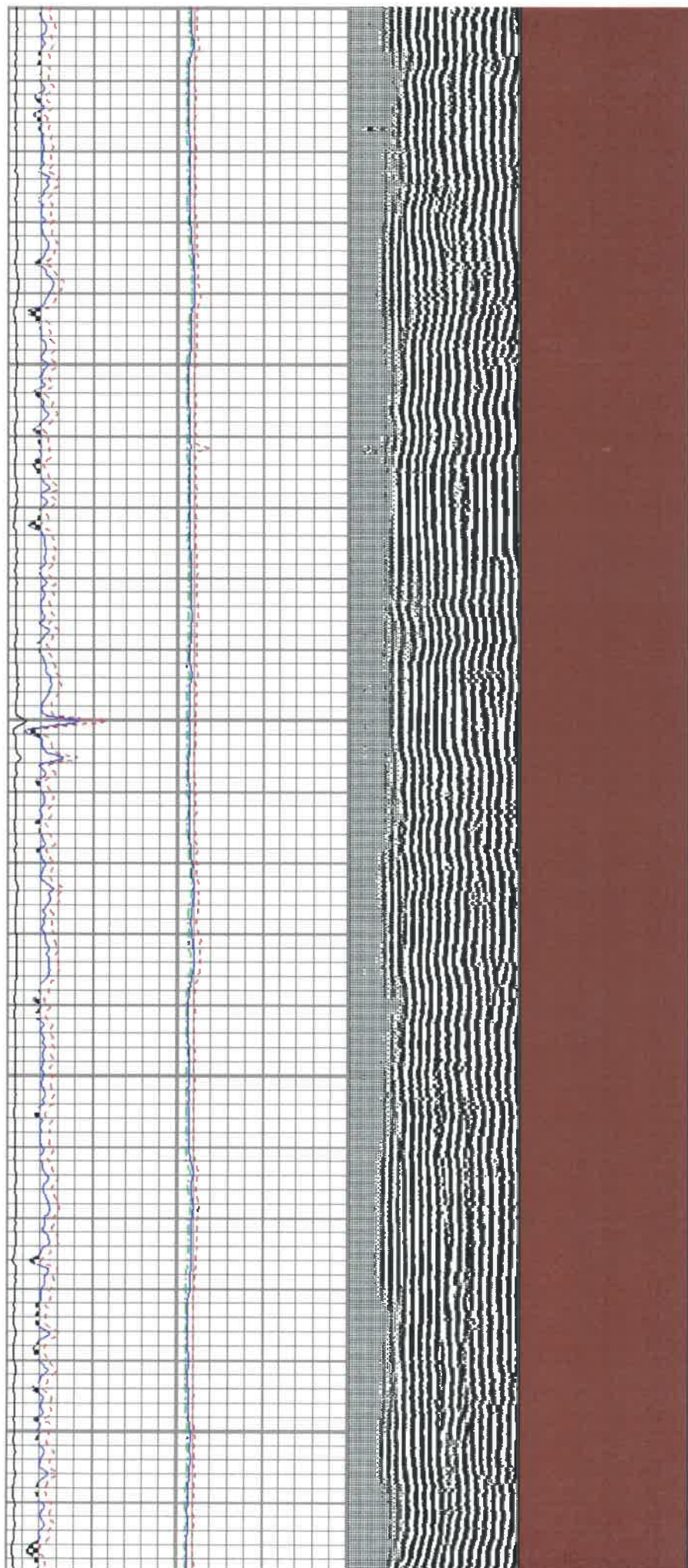
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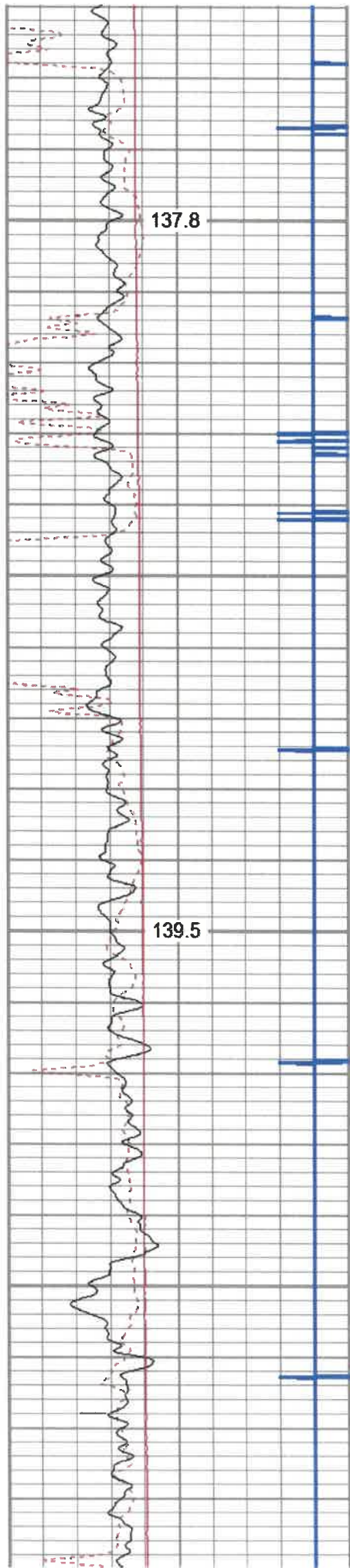




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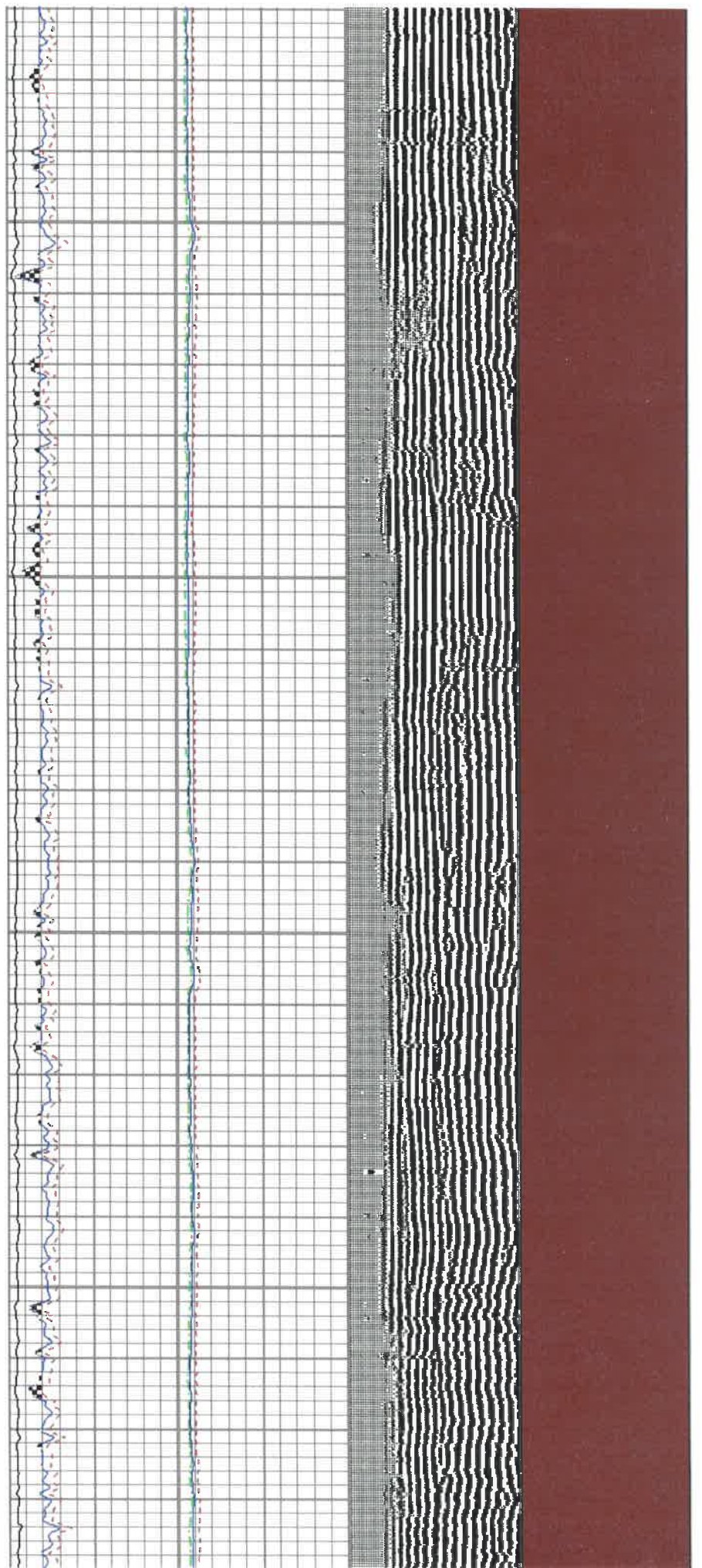
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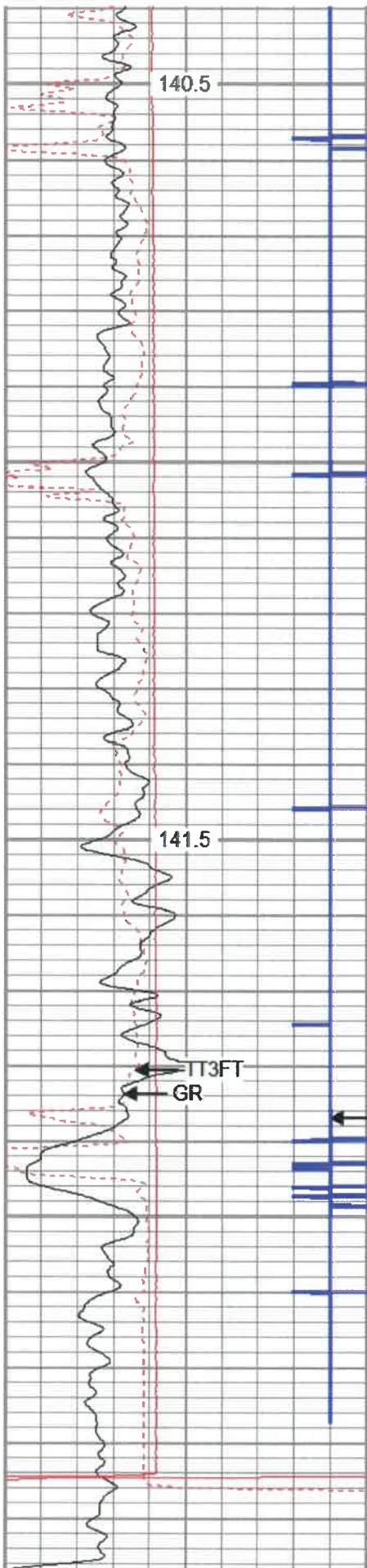




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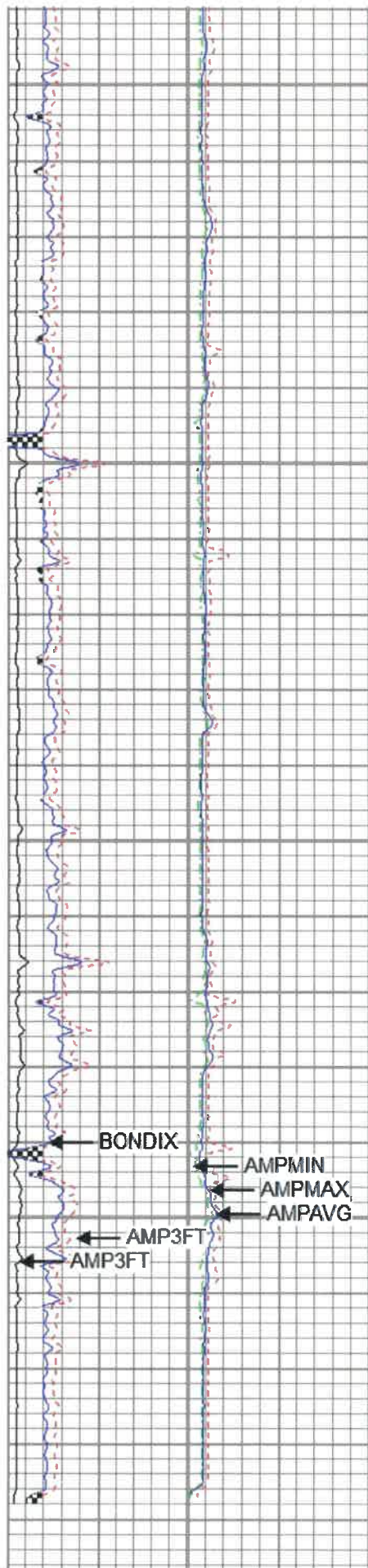
7300





7400

7500



280	Travel Time (usec)	180
9	Casing Collars	-1
0	Gamma Ray	180

Amplitude	0	Amp Avg	150
(mV)	100	Amp Max	150
AmpX5 (mV)	20	Amp Min	150

200	VDL	1200	1	Sector Map	12
			20		80

0 TEMP (degF) 100

1 BONDIX 0

TEMP
(degF)



REPEAT SECTION

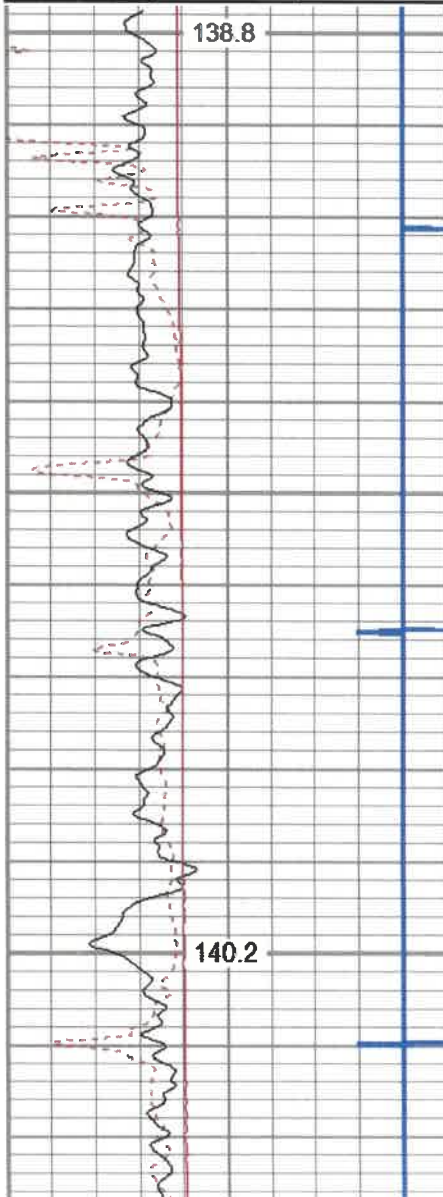
Database File: g:\antero-hogue pad\kramer 2h.db
Dataset Pathname: pass2
Presentation Format: antero
Dataset Creation: Thu Jul 02 13:07:23 2020 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

280 Travel Time (usec) 180
9 Casing Collars -1
0 Gamma Ray 180
0 TEMP (degF) 100

Amplitude 0 Amp Avg 150 200 VDL 1200
0 (mV) 100 0 Amp Max 150
0 AmpX5 (mV) 20 0 Amp Min 150
1 BONDIX 0

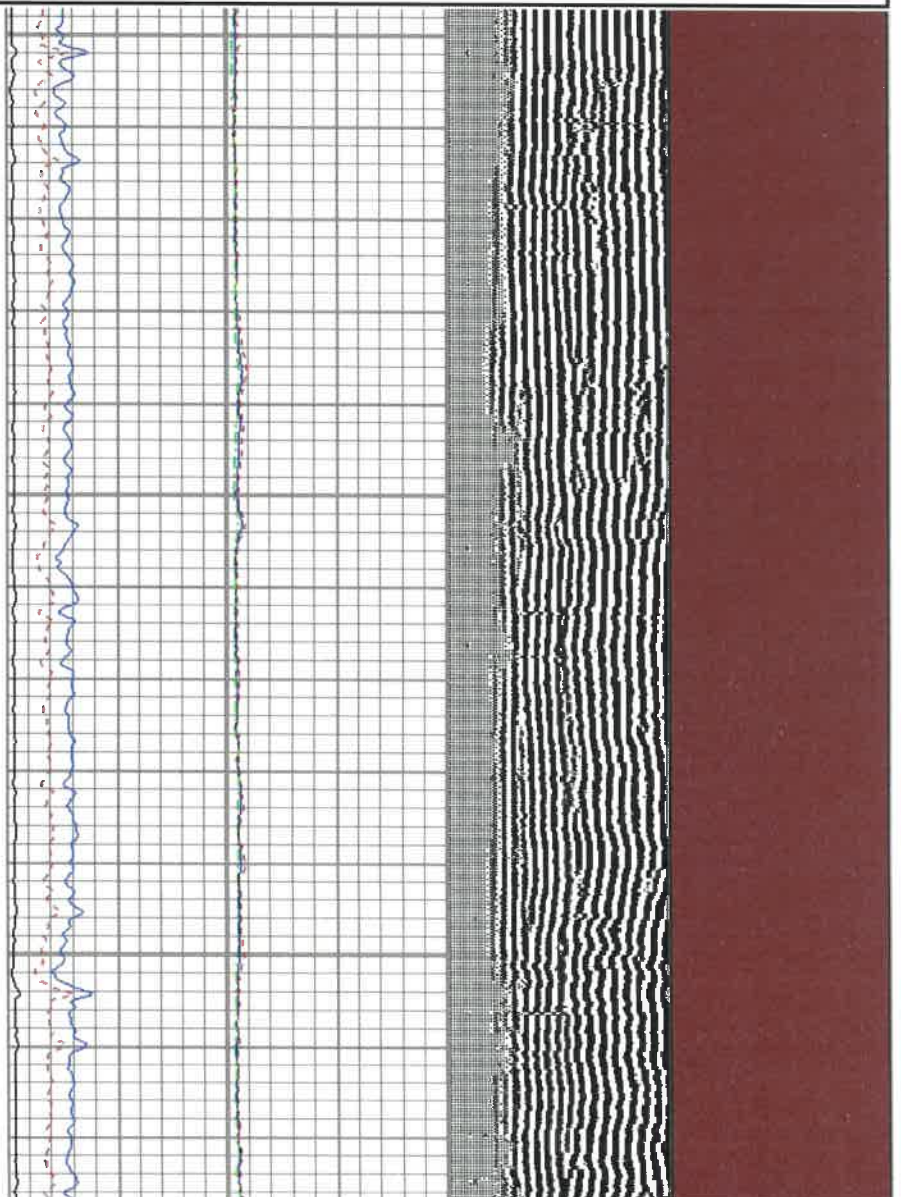
1 Sector Map 12
20 80

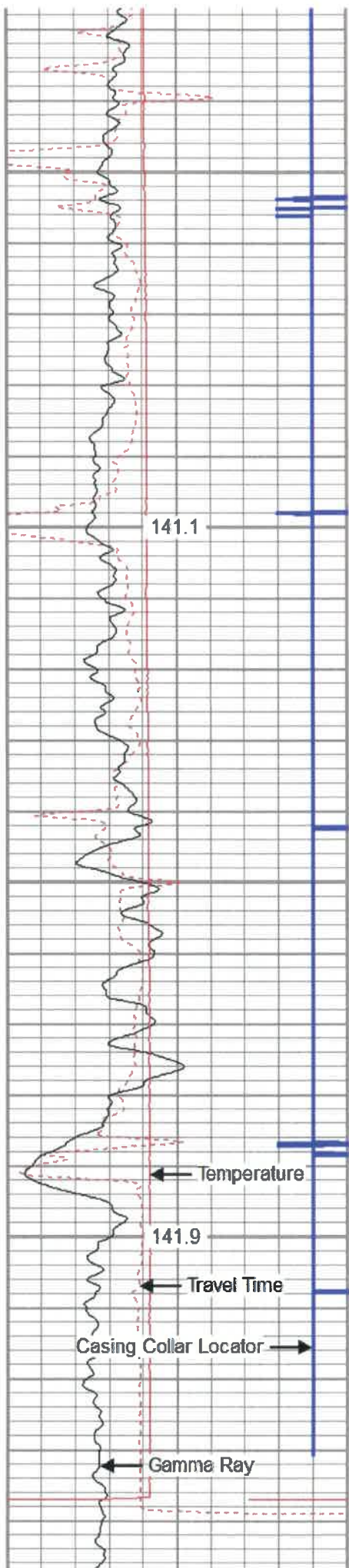
TEMP
(degF)



7300

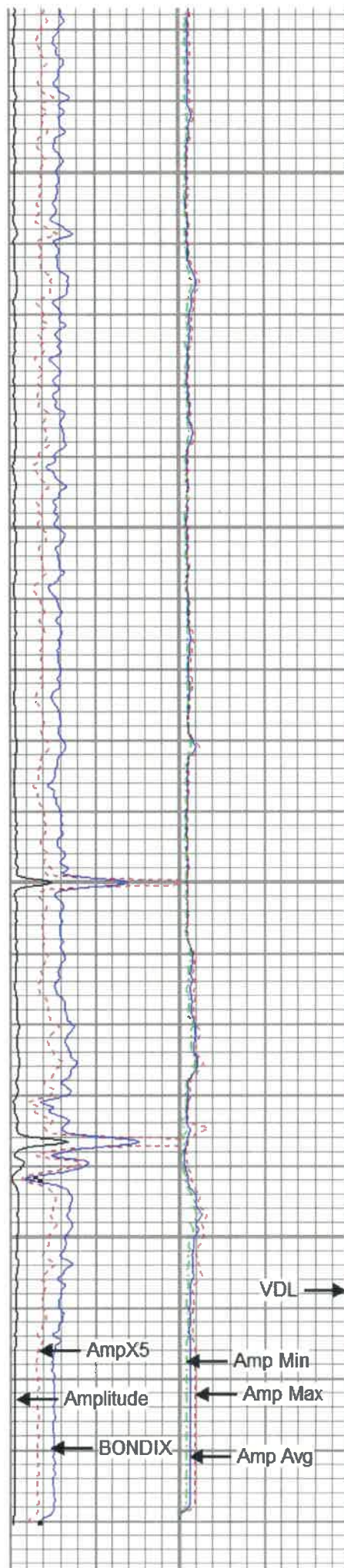
7400





7500


7600




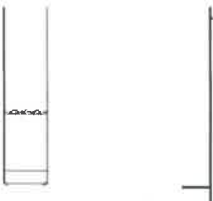
VDL →



280	Travel Time (usec)	180	Amplitude	0	Amp Avg	150	200	VDL	1200	1	Sector Map	12
9	Casing Collars	-1	0	(mV)	100	0	Amp Max	150		20		80
0	Gamma Ray	180	0	AmpX5 (mV)	20	0	Amp Min	150				
0	TEMP (degF)	100	1	BONDIX	0							



Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)	
CCL	18.93		CCL-312tekco (3.12TEKCO) Tekco 3 1/8" 450 Deg. "F" SmCo Logging CCL	1.82	3.12	25.00	
			2.75 2 3/4" Tekco Adjustable Centralizer	2.73	2.75	25.00	
TEMP	12.77						
WVFS1	11.48						
WVFS2	11.48						
WVFS3	11.48			SCBL-Tek12 (IOL40-05) Tekco 400 Deg F 12 Sector RIB with Temp	9.13	3.25	135.00
WVFS4	11.48						
WVFS5	11.48						
WVFS6	11.48						
WVFS7	11.48						
WVFS8	11.48						
WVFS9	11.48						
WVFS10	11.48						
WVFS11	11.48						
WVFS12	11.48						
WVF3FT	10.73						
WVFCAL	10.73						
WVF5FT	9.73						
WVFTEMP	6.40						
WVFSYNC	6.40		2.75 2 3/4" Tekco Adjustable Centralizer	2.73	2.75	25.00	

GR	1.04		GR-Tek-Co 2 3/4 (IPSNO-03) Tekco 2 3/4" 400 Deg. F Logging Gamma Ray	3.67	2.75	40.00
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Dataset: kramer 2h.db: field/well/run1/pass3
 Total Length: 20.07 ft
 Total Weight: 250.00 lb
 O.D.: 3.25 in

Calibration Report

Database File: G:\ANTERO-HOGUE PAD\kramer 2h.db
 Dataset Pathname: pass3
 Dataset Creation: Thu Jul 02 13:16:53 2020 by Log 7.0 B1

Gamma Ray Calibration Report

Serial Number: IPSNO-03
 Tool Model: Tek-Co 2 3/4
 Performed: Mon Nov 07 10:23:17 2016

Calibrator Value: 1.0


Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps

Sensitivity: 0.3000 /cps

Temperature Calibration Report

Serial Number: IOL40-05
 Tool Model: Tek12
 Performed: Wed Jul 31 10:53:14 2013

	Reference		Reading	
Low Reference:	0.00	degF	0.00	usec
High Reference:	1.00	degF	1.00	usec
Gain:	0.33			
Offset:	0.00			
Delta Spacing	2			

	Company	ANTERO RESOURCES CORPORATION
	Well	KRAMER 2H
	Field	MARCELLUS
	County	TYLER
	State	WV
	Country	